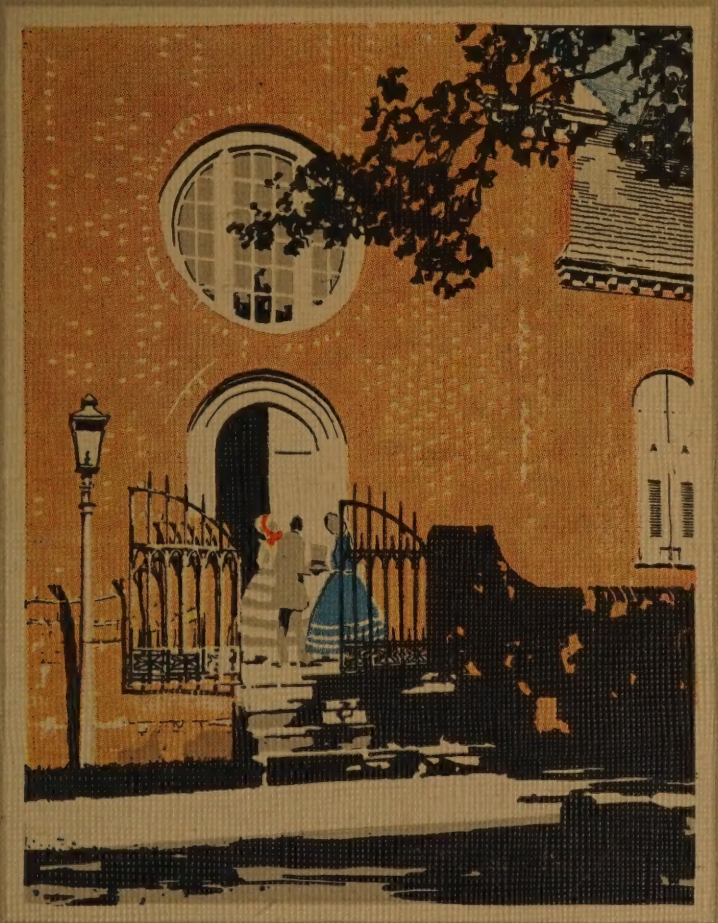
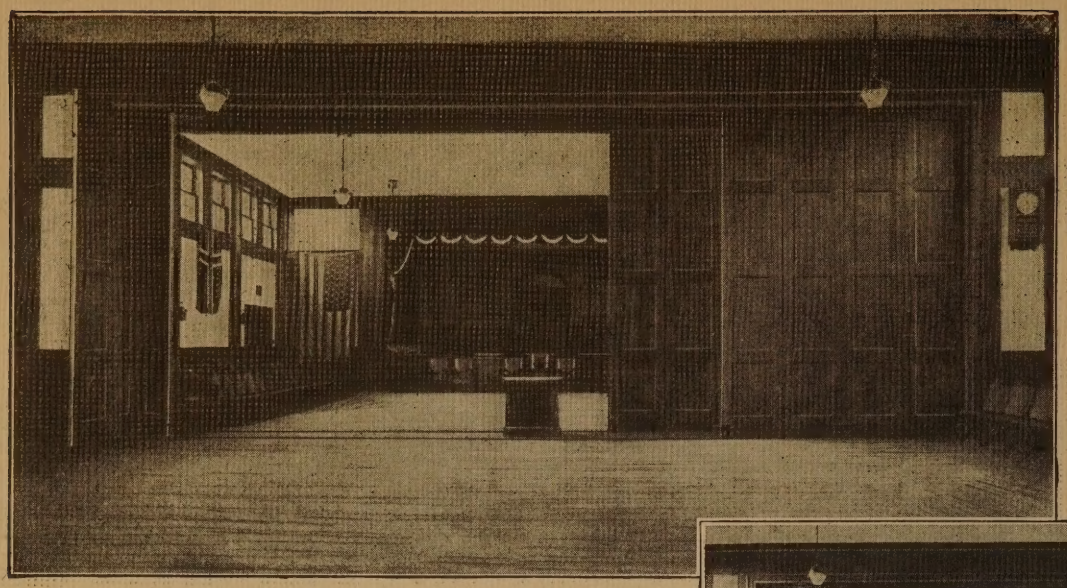
THE ARCHITECTURAL FORUM



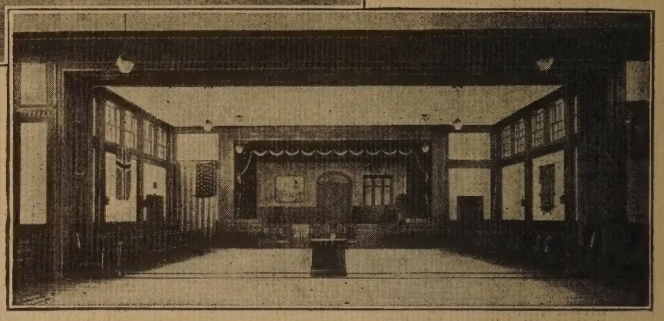
AUGUST

1925



A double row of doors are provided in this installation — when closed off each room is soundproof.

When opened each row of doors folds inside of pockets at either side of opening, which in turn are concealed by paneled doors.



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Lodge rooms, churches, hotels and schools are logical points for foregathering. Space is an important item. Equipped with R-W Folding Partition Door Hardware it is but the matter of a moment to convert any number of small rooms into one, and with equal facility to re-convert this big room into snug, cosy little rooms. The doors are hinged together in pairs and each pair is operated as a separate unit. All doors are made to open in one direction or, the doors may be divided in the center and half of the doors folded to the right and half to the left. Double duty from floor space, making it twice as valuable, a vital consideration with mounting land values. Write for full particulars.

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The value of your specification file will undoubtedly be enhanced by the addition of these three bulletins covering practically every phase of Natco Hollow Tile construction.

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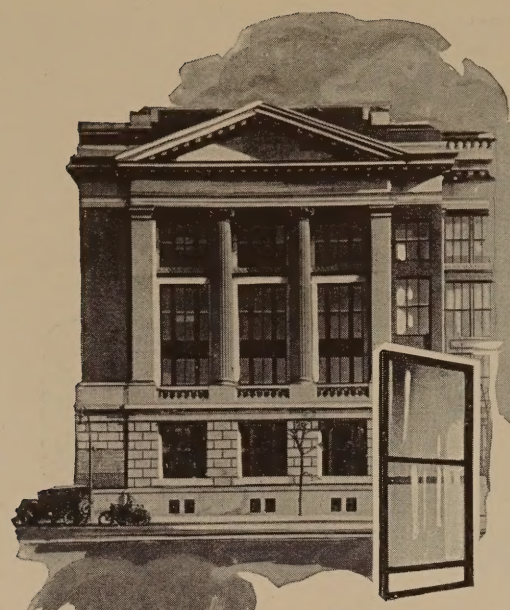
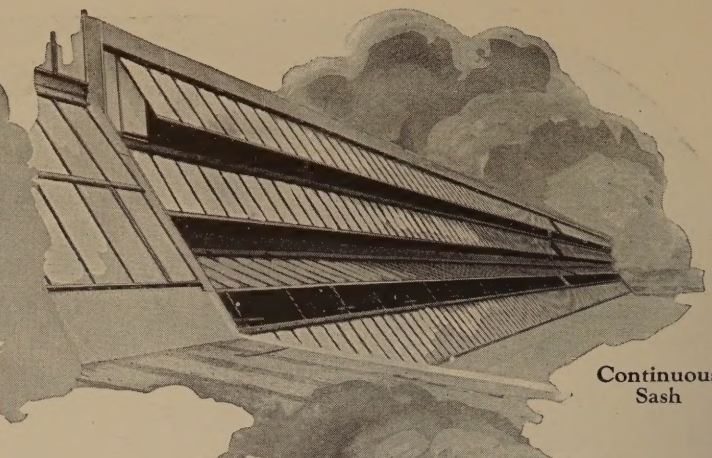
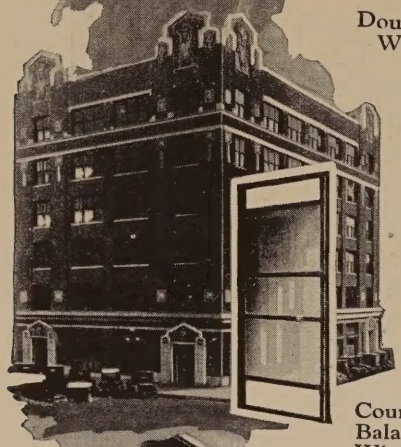
Volume XLIII THE ARCHITECTURAL FORUM Number 2
Published Monthly by Rogers and Manson Company, 383 Madison Avenue, New York, N. Y. Yearly Subscription: U. S. A., Insular Possessions and Cuba, $6. Canada, $6.75. Foreign Countries in the Postal Union, $7.50. Single copies, 60 cents. Entered as second Class Matter at the Post Office, New York, N. Y., under the Act of March 3, 1879.



Double-Hung Windows

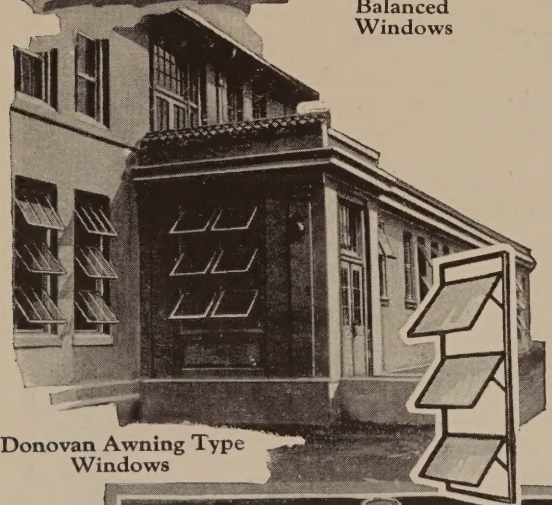


Continuous Sash

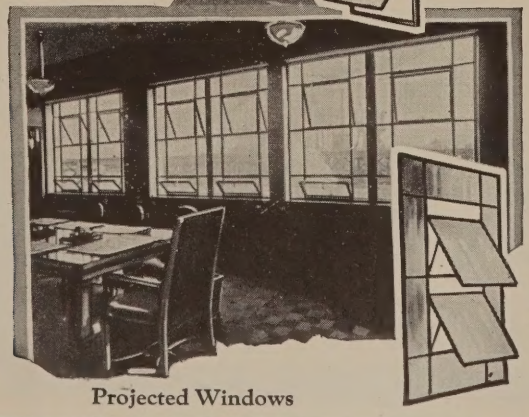


Counter Balanced Windows

Center Pivoted Windows



Donovan Awning Type Windows



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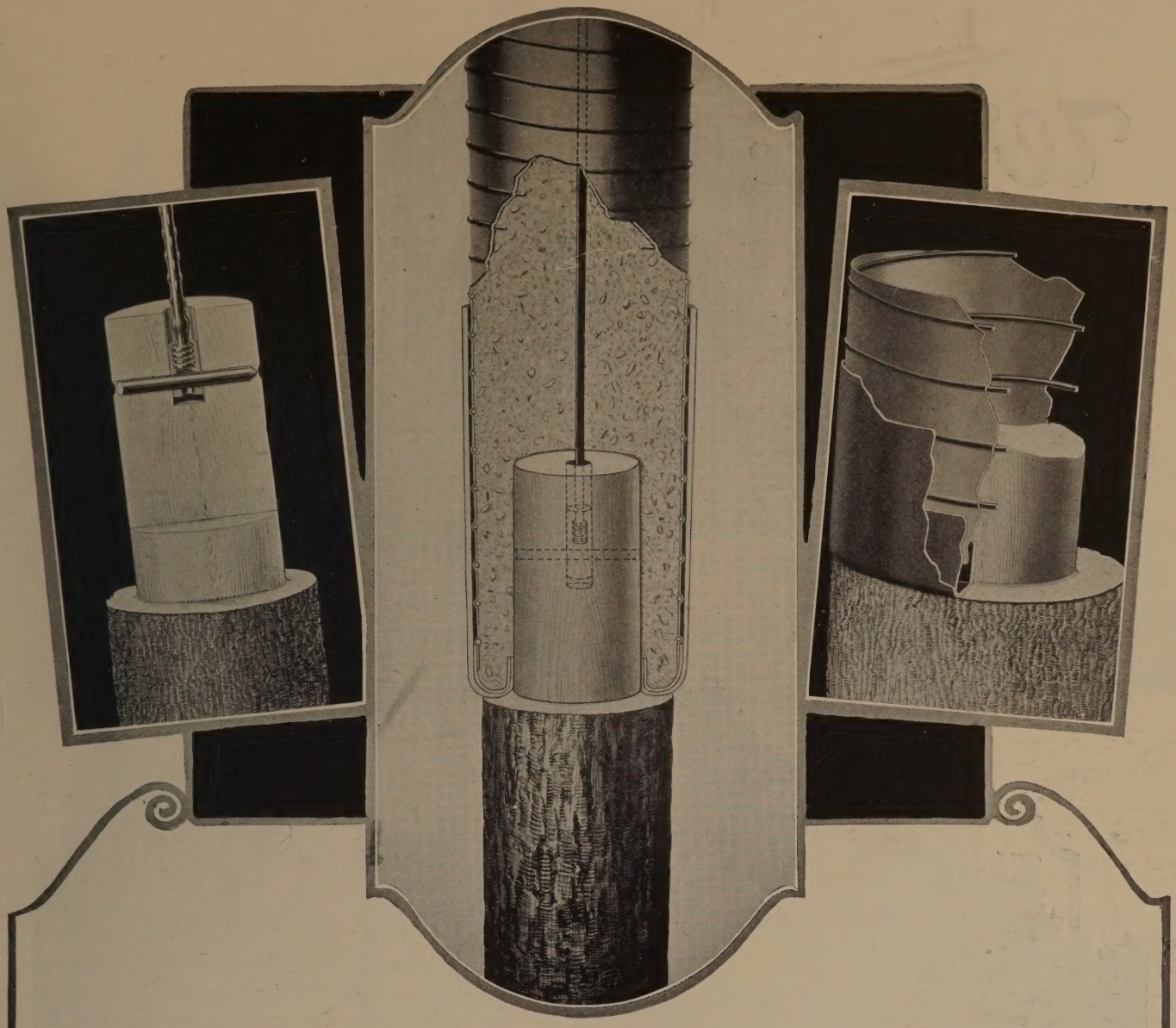

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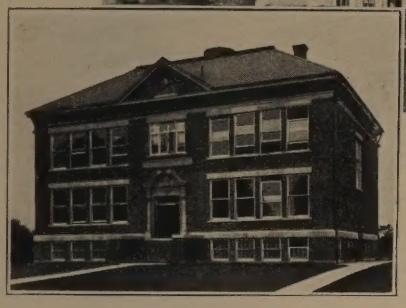
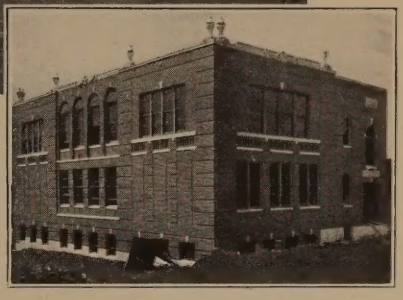
Science Hall, Notre Dame University, South Bend, Ind. Kervick & Fagan, Architects, Notre Dame, Ind.



Francis Stillman School, Wethersfield, Conn. Wm. D. Johnson, Architect, Hartford, Conn.



William Rockhill Nelson School, Kansas City, Mo. Chas. A. Smith, Architect, Kansas City

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5. Doors for cleaning flues in the front.
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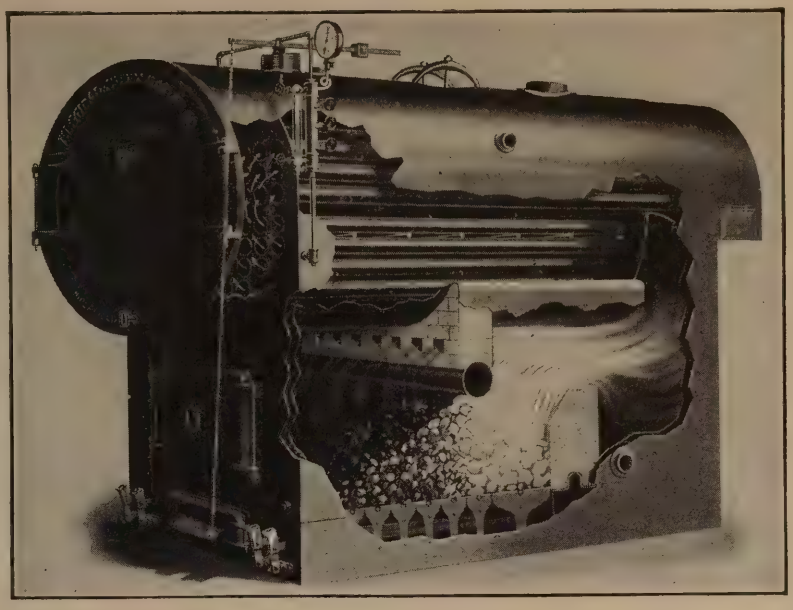

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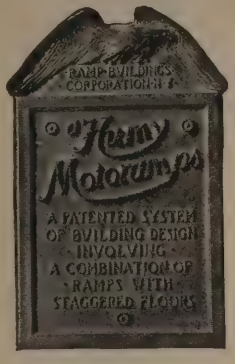
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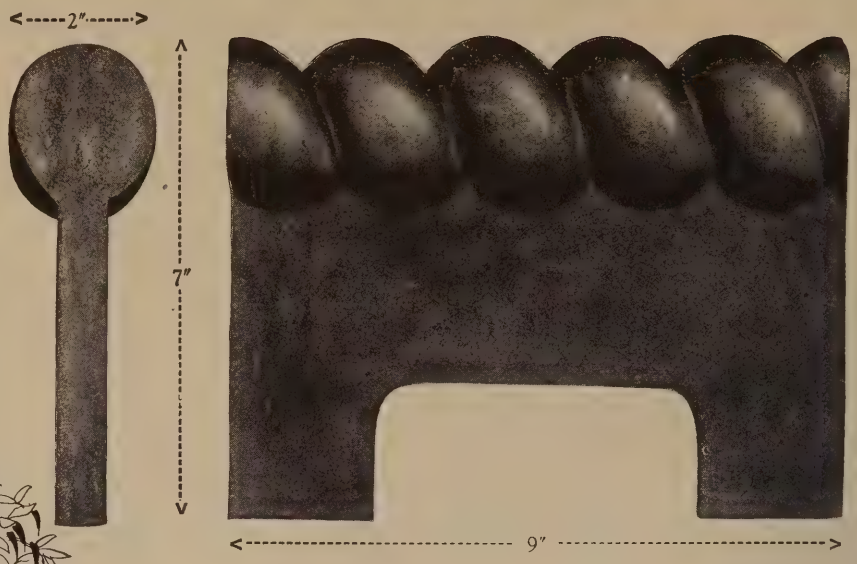

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Soule, Murphy and Hastings, Architects

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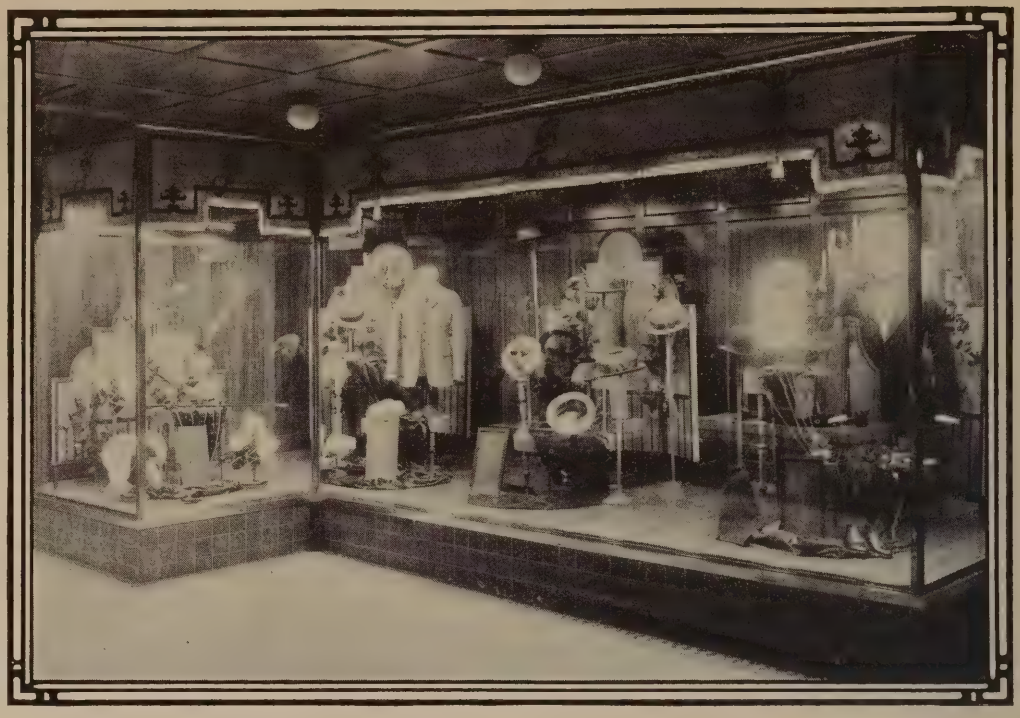

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pressure on the plate glass. With each turn of the key, the entire copper gutter moves forward, not merely that portion where force is applied.

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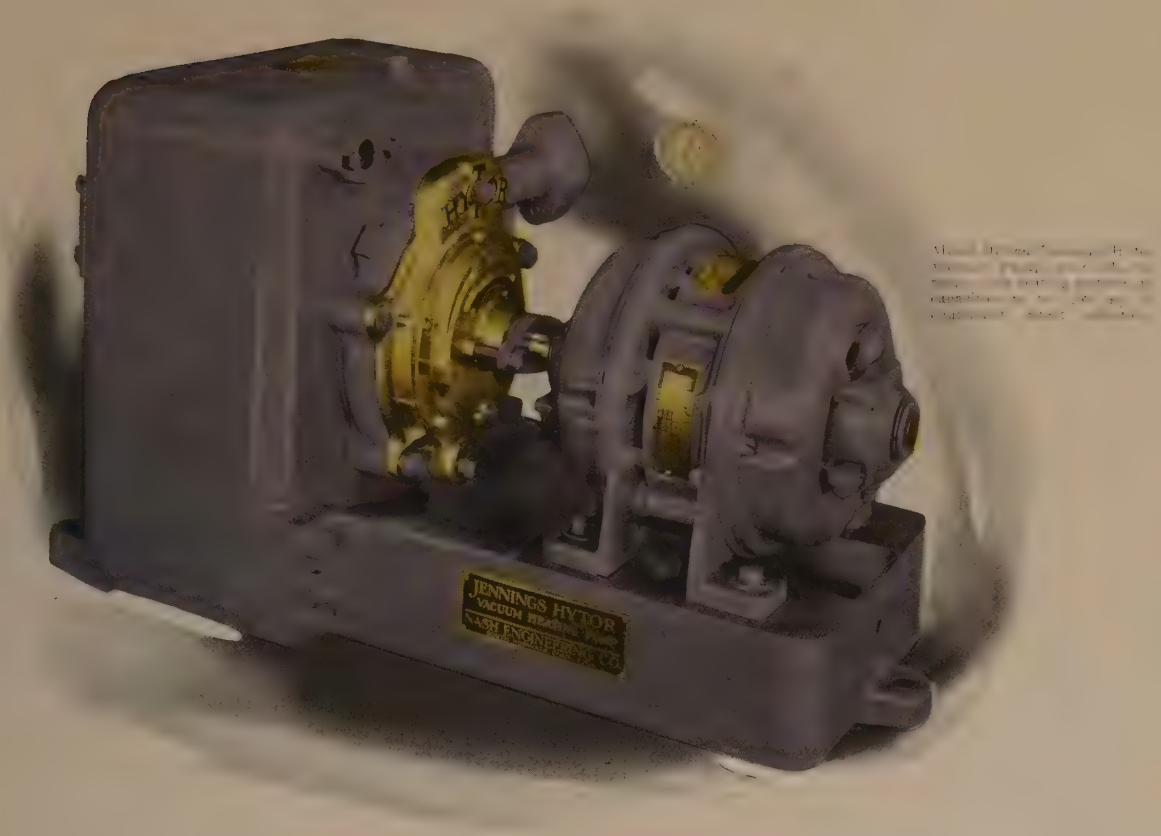
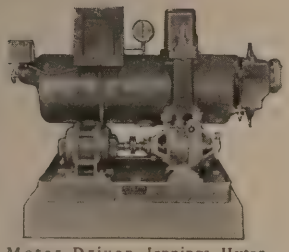
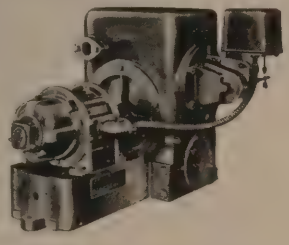


Many types, but one quality - *the finest*



Motor-Driven Jennings Hytor Vacuum Pump for return line heating systems in capacities up to 300,000 sq. ft. equivalent direct radiation.



Motor-Driven Jennings Hytor Condensation Pump, Unit Type for removing condensate from steam heating systems, in capacities up to 16,000 sq. ft. equivalent direct radiation.

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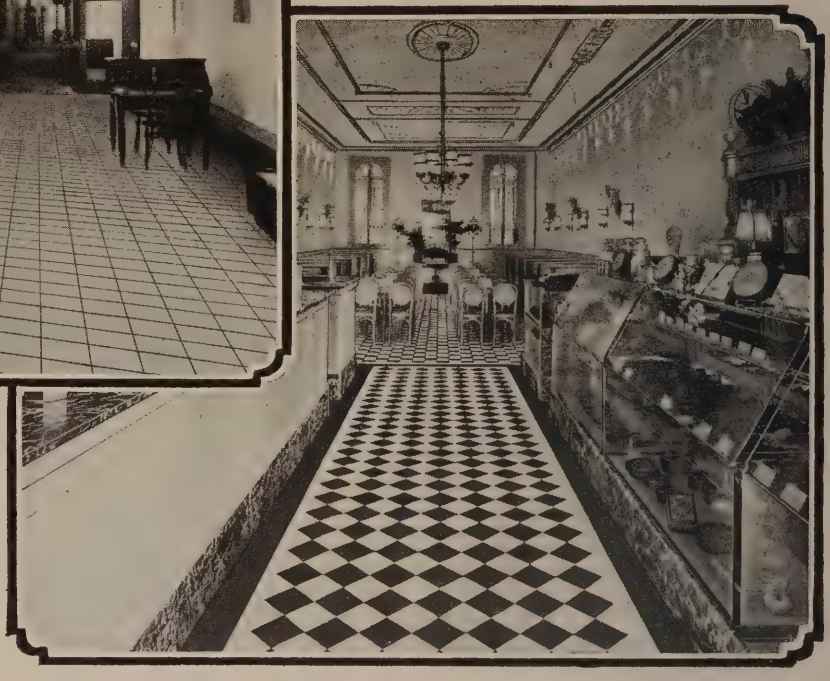
Light gray Linotile with black joints makes a particularly suitable and at the same time very attractive design for a bank lobby. This one is in the Columbia (Pa.) National Bank.

The Linotile Trail ~ Over the Continent



The effectiveness of a Linotile Floor as a feature of interior decoration is at once apparent as one steps into the Betsy Ross Chocolate Shop in Wilkes-Barre, Pa. The field and border are light gray and dark blue.

In Eastern Pennsylvania—

IN the vicinity of Philadelphia, the large number of installations is evidence of the favor in which Linotile floors are held. In institutional, public and commercial buildings as well as in offices and homes, Linotile floors may be found in almost any part of this populous district.

The reason, of course, is that Linotile admirably combines *all* of the features so desirable in floors—beauty of color and design, resilience and comfort underfoot, quietness, durability and very reasonable cost of installation and upkeep.

Linotile, the resilient floor of cork composition, is fully described and illustrated in color in the books, "Linotile Floors for Public and Semi-Public Buildings," and "Linotile Floors for Residences." A copy of either or both and sample tile will be sent on request.

A FEW OTHER EASTERN PENNSYLVANIA INSTALLATIONS

Supplee-Wills-Jones Milk Co., Philadelphia, Pa.
Moss Rose Mfg. Co., Philadelphia, Pa.
Hallahan's Shoe Store, Philadelphia, Pa.
Cathederal of St. Peter and Paul, Philadelphia, Pa.
St. Mary's Institute for the Blind, Lansdale, Pa.
Abbotts Alderney Dairies (Offices,) Philadelphia, Pa.
General Accident Insurance Co., Philadelphia, Pa.
Odd Fellows Home, Middletown, Pa.
Presbyterian Home for Aged Couples, Bala, Pa.
Residence of Irwin du Point, Wilmington, Del.
Breakers Hotel, Atlantic City, N. J.
St. Joseph's Hospital, Philadelphia, Pa.

ARMSTRONG CORK & INSULATION COMPANY
Division of Armstrong Cork Company
132 TWENTY-FOURTH STREET PITTSBURGH, PA

Linotile Floors

Zinc

A roof is exposed to the same conditions as eaves-troughs, gutters and conductor pipes. It, too, must carry off the beating rain, resist the scorching sun and bear up under heavy snow.

It is logical to conclude that Horse Head Zinc—the unexcelled material for eaves-troughs, gutters and conductor pipes—is also unexcelled for standing seam roofing. Standing Seam Horse Head Zinc Roofing will not leak, it cannot rust. It will last a lifetime—and it grows more beautiful with age.

The standing seam type roof will repay your study. Essentially it is a practical roof; yet it lends itself advantageously to virtually all types of modern architecture.

The New Jersey Zinc Company

Established 1848
Products Distributed by

The New Jersey Zinc Sales Company

160 Front Street, New York City

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No Climate Too

The Cold of New England

Here Banner does its full share in many a building to keep out the cold of the good old-fashioned Yankee winters and the gales of fierce "north-easters," besides giving snow-white, velvety-smooth, hard and permanent, finished walls.

The Heavy Salt Air of New Jersey

Used in the majority of Atlantic City's big hotels and all along the Jersey Coast, Banner has proved its worth as a permanent building material in a climate that demands the utmost in the way of permanency and durability.

The Heat and Humidity of Florida

To far off Florida, Banner is brought from Ohio, to finish the walls and ceilings of buildings where beauty and permanence have especial consideration.

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The Home of Banner Finish at Gibsonburg, Ohio, is the world's largest factory devoted to the production of one brand.

"Easy to spread--
hard to beat"

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Severe for "Banner"

For smooth, hard, seamless walls that won't sag or warp, use Banner Finish for all three coats of plaster applied over brick, tile, metal lath or wood lath.

No matter what the climate may be, Banner will stand up and last longer.

Buildings of every description in all parts of the country are proving the claims made by Banner and the constantly increasing demand for the finish that is "Easy to spread—hard to beat" is your assurance that the question of permanency, durability and firesafeness is forever settled when you specify Banner.

NATIONAL MORTAR & SUPPLY COMPANY
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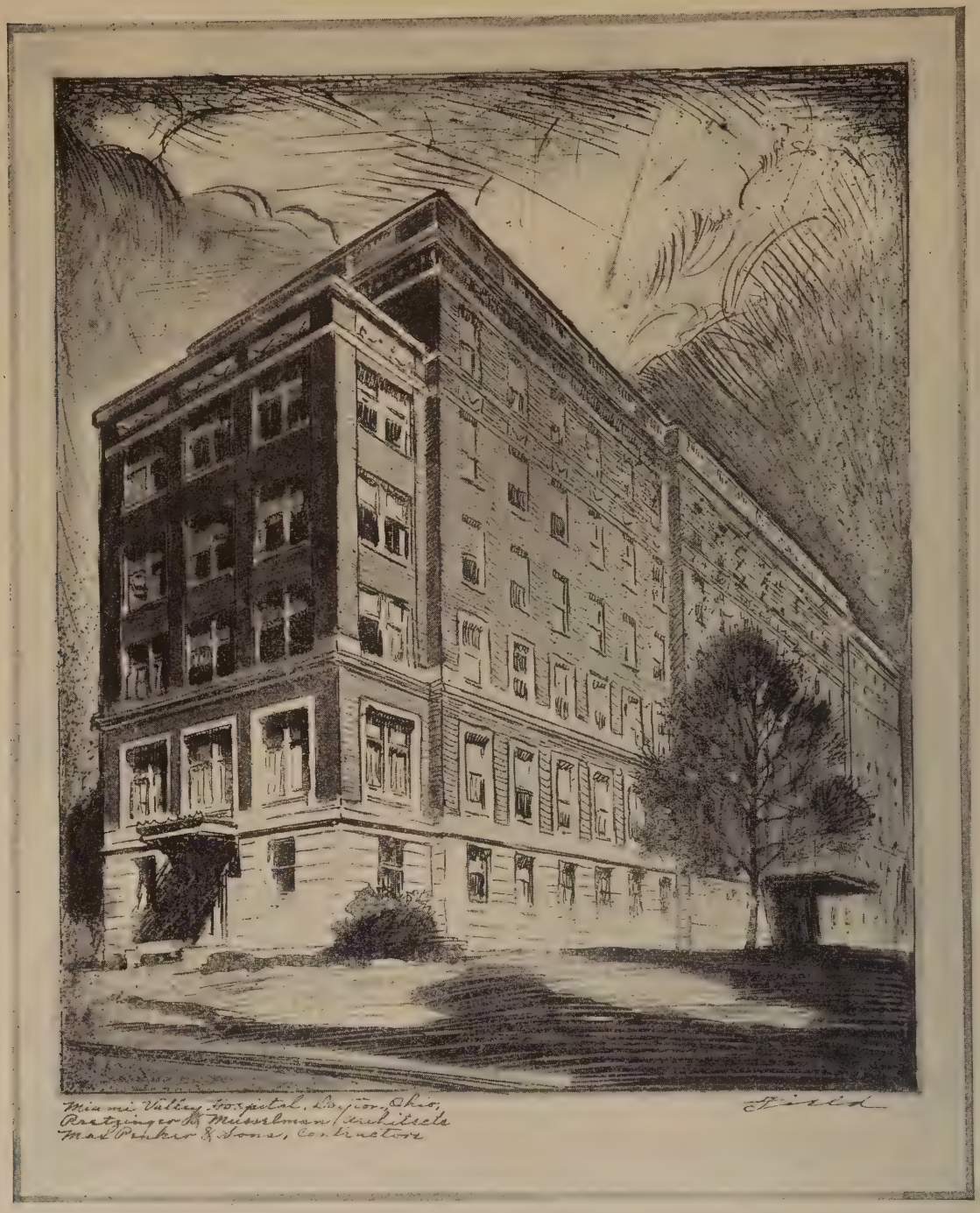
Banner



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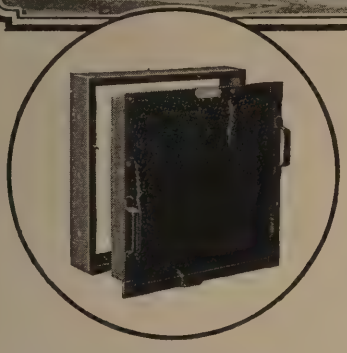
Above: The Frank Douglas High School, Baltimore, Md. Left: Clifton Park High School, Baltimore, Md. Both schools equipped with Reed Air Filters.



The lower illustration shows a single Reed Air Filter unit. Because of this unit principle, Reed Air Filters are easily adapted to any ventilation requirements at relatively little cost.

Baltimore Schools Reorder REED AIR FILTERS after six-months test

Six months after Reed Air Filters were installed in the Clifton Park High School, Baltimore, an installation was ordered for the Frank Douglas High School of that city.

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(REED AIR FILTERS are manufactured under patents of May 16, 1922, Feb. 12, 1924, Nov. 18, 1924. Other patents pending.)

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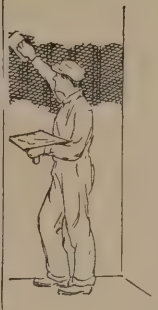

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Terra Cotta Roofing Tiles

Office and Factory—Denver, Colorado *Eastern Office*—G. E. Hardie—Lefferts Blvd. & 95th St., Richmond Hill, N. Y. City

No.1—PLYMOUTH SHINGLE
Size: 6½ x 11 to 12 x ⅝" thick

Expo.	Pcs. to sqr.	Wgt. to sqr.
5"	443	1100 lb
4½"	490	1200 lb
4"	554	1350 lb

Plymouth Shingle

Duplication of "Old English," in color, shape and texture.

Laid up on 5, 4½ and 4" vertical exposures.

In light, medium and dark "Antique" shades.

The hand roughened and sanded face texture, in the Antique shades, produces a time-worn, soft effect.

A 200-year-old tile right out of our factory. Butts, cut irregularly, same color as faces. A percentage of the tiles made "off size," to break up regularity in application.

Stretcher tiles for "double eaves" and "ridge courses." These tiles are an artistic product and should be applied by men having knowledge of the purpose intended.

Our 5 Special Shapes

The tiles shown have been specified for various important buildings by many architects, among them the following practitioners:

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G. H. Chamberlin
Day & Klauder
Cass Gilbert
Jackson, Robertson & Adams
H. T. Lindeberg
Magaziner, Eberhard & Harris
H. M. Polhemus
Prentice Sanger
Frederick Sterner
D. Everett Waid

Dutch Colonial

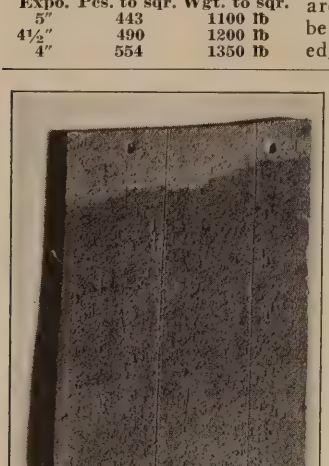
A long, heavy square butt tile, in true harmony with Dutch Colonial lines of architecture.

In graduated color range, three shades each of Dull Black, Lighter Antique, Burgundy, Red and Salmon. Face texture, wire cut or sanded. Laid up on 9, 8 and 7" vertical exposures. A waterproof felt roof must be laid under these tiles. Stretcher tiles for "double eaves" and "ridge courses."

A percentage of the tiles made "off size" and the butts cut a shade "off shape," but all maintaining the general idea of regularity.

Expo.	Pcs. to sqr.	Wgt. to sqr.
9"	229	1290 lb
8"	258	1450 lb
7"	294	1650 lb

No. 4—DUTCH COLONIAL
Size: 7 x 16 x ¾" thick



No. 2—DERBY SHINGLE
Size: 7¾ x 12 x ½" thick

Derby Shingle

In French graduated color range.

Three shades each of Dull Black, Burgundy, Red and Salmon.

Wire cut face textures.

Laid up on 5, 4½ and 4" vertical exposures.

Hip and ridge trim, if any, straight barrel or tapered roll.

Stretcher tiles for "double eaves" and "ridge courses."

In a graduated color range, a beautiful roof is produced by buttering all or a large proportion of the butts with Portland cement mortar.

The range of colors and the proportion of each are subject to the architect's selection.

Expo.	Pcs. to sqr.	Wgt. to sqr.
5"	373	1100 lb
4½"	413	1200 lb
4"	465	1350 lb

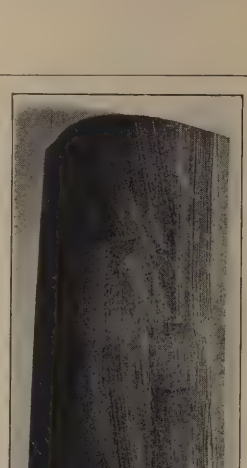
Mission

In variegated colors, three shades each of Dull Black, Lighter Antique, Burgundy, Red, Straw, Gray, Blue and Green. Random lengths, so made at the factory before coloring or burning. Butts irregular, also so cut at the factory. Hip and ridge trim, straight barrel or tapered roll. Face textures, light or heavy hand roughened, granulated or smooth.

In a variegated field of "Typical Italian" colors, a beautiful roof is obtained by bedding all or a large proportion of the butts in Portland cement mortar—this will bring out the color scheme and also kick up the tiles unevenly. If, in the application, the courses are allowed to swerve slightly to right and left, the result will be the elimination of all vertical and horizontal lines and even surfaces.

For the lighter shades in a roof field, we offer our Light Burgundy, light Reds and Light Straw.

Expo., Random Pcs. to sqr., 220
Wgt. to sqr., 1300 lb



No. 5—MISSION
Size: 8"x random x ½" thick

Zoar

Duplication of original "Holland" Zoar.

Hand-fluted face texture.

Laid up on 9, 8 and 7" vertical exposures.

Butts, random cut, half round, elliptical and segmental—all slightly "off shape."

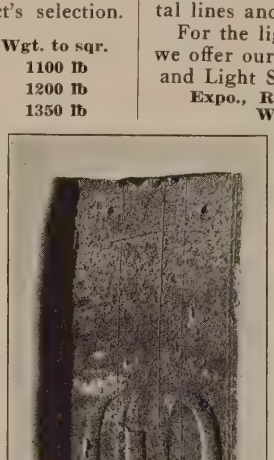
In graduated shades of Antiques and Reds.

A waterproof felt roof must be laid under these tiles.

The long exposure, fluted faces and the color shades combine to produce the beauty in a roof of these tiles.

A percentage of the tiles made "off size" to avoid regular lines.

Expo.	Pcs. to sqr.	Wgt. to sqr.
9"	229	1290 lb
8"	258	1450 lb
7"	294	1650 lb

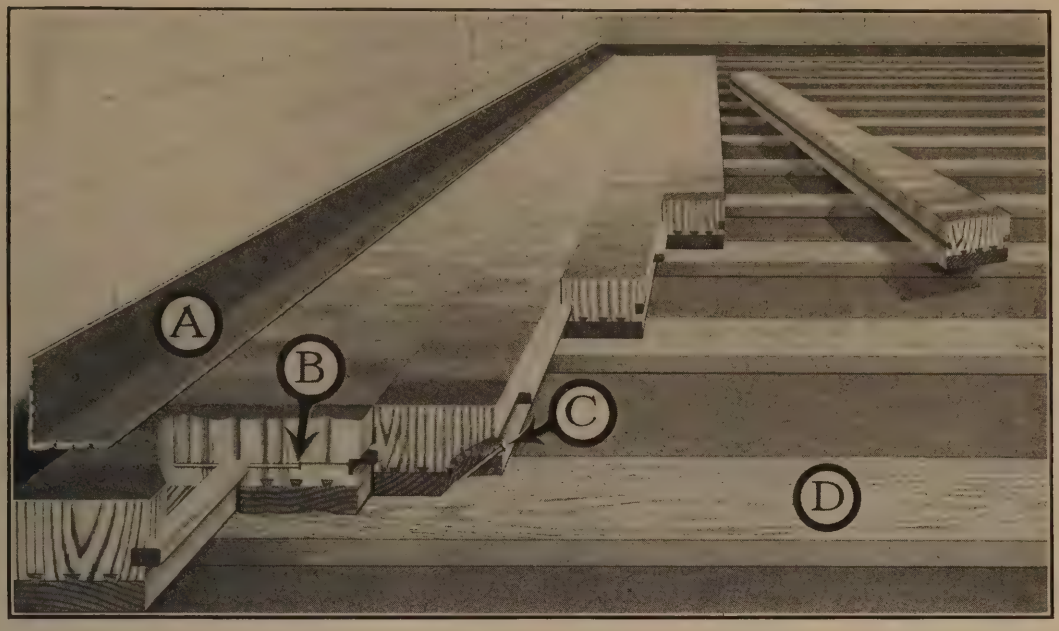


No. 3—ZOAR
Size: 7 x 16 x ¾" thick

NOTE: All weights and sizes are close approximates.

NOTE: We estimate from plans, quoting a lump sum for all tiles and trim to complete the roof—f. o. b. destination. We take all responsibilities for quantities.

No dangerous Slivers



Bloxonend Flooring

for Gymnasiums, Drill Rooms, Auditoriums

A Angle iron covers expansion opening and serves as wall protector. Quarter Round or O. G. Mold may be used in lieu of angle iron.

B Bloxonend sections (approximating 8 ft. lengths) broken to illustrate lateral nailing. Provided with special nails in countersunk bores ready for driving.

C Bloxonend sections toe-nailed through base into floor strips. When toe-nailed, lateral nailing may be eliminated.

D Floor strips recommended only when maximum resilience required. Ordinarily Bloxonend is laid directly over concrete by lateral nailing without sleepers.

The method for laying Bloxonend in gymnasiums, illustrated above, is recommended to those requiring maximum resiliency. However, Bloxonend is inherently resilient and floors laid *directly over concrete* by lateral nailing are entirely satisfactory to many architects, physical directors and athletes now using them.

In addition to resiliency, Bloxonend gives you every other quality you want in a gymnasium floor. It is bright, clean, attractive, exceptionally durable and while smooth always, it affords a firm, safe foothold minimizing falls and accidents.

Being end grain, Bloxonend cannot sliver—a safeguard worth providing. Plates used in anchoring gymnasium equipment easily and satisfactorily inserted.

Specifications covering the use of Bloxonend in gymnasium and general industrial service furnished upon request

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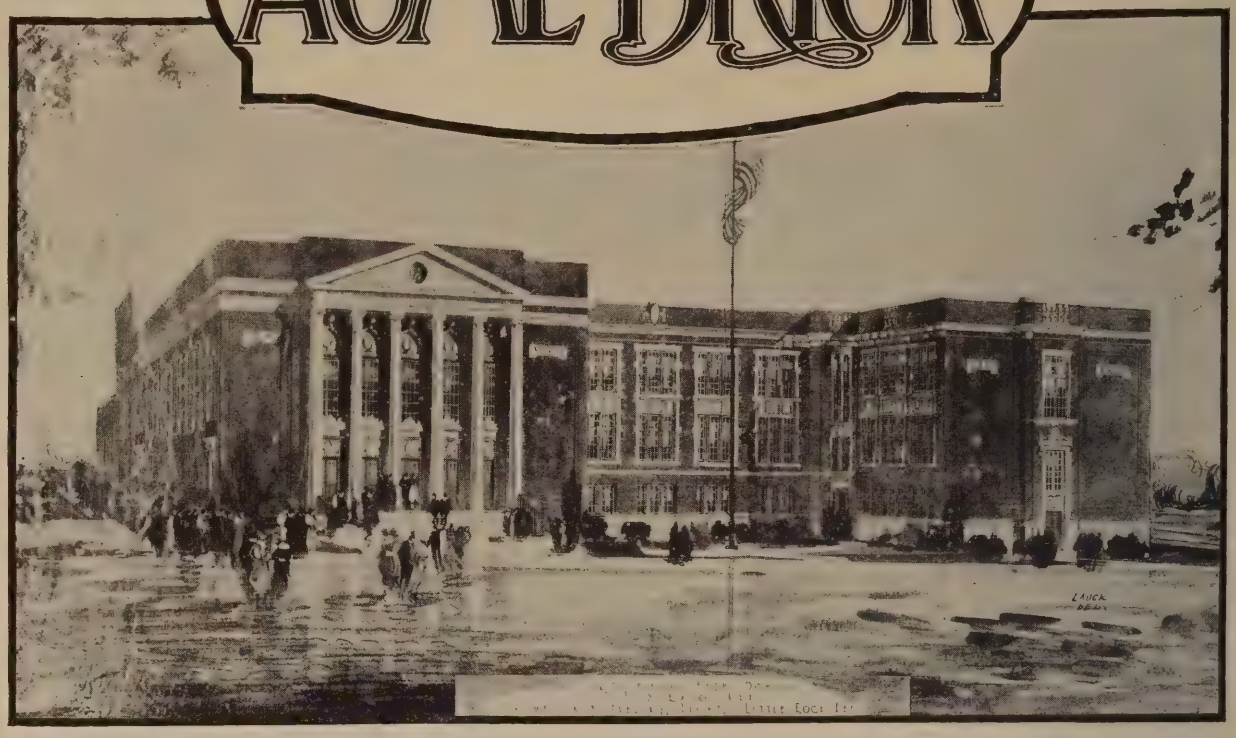

High School, Eldorado, Arkansas, Thompson & Harding, *Architects*, William Peterson, *Builder*

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A SPLENDID example of brick treatment that carries out the spirit of the material. Note the grace of the piers with their stone caps, the beautiful frieze, lightened with spots of stone trim, the pendant arches, resting on the corbels, and the chimney with its ornamental cap. The soft texture of the wall imparted by the mat brick and natural flush cut mortar joint, which is one of the most charming features of this building, is lost in the small illustrations.

Two Views of St. Paul's School, Park Ridge, Illinois. James Burns, Architect

ARCHITECTS in all parts of the country are designing beautiful face brick buildings. More than a hundred illustrations of their work have been assembled in "Architectural Details in Brickwork." These halftone plates suggest the wide range of effects that can be economically produced by standard size face brick. The portfolio, published in three series, each inclosed in a folder ready for filing, will be sent to any architect making request on his office stationery

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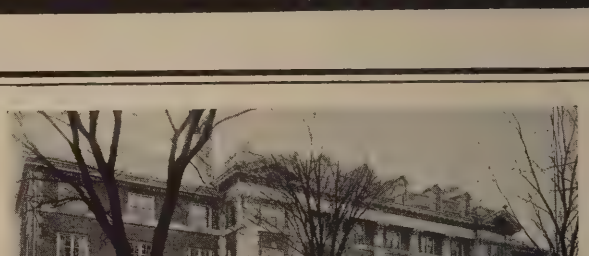

J. M. White, Architect
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Walker & Weeks, Architects

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Chicago Pumps

A Tread-mill Woman of Siam

Photo by Ewing Galloway © *Arranged by G. F. Mannion*

Pictured above is a typical Siamese family group at work in the fields. As is the custom in countries only partially civilized, the man of the house is standing around indolently, while "his woman" plies her sturdy legs to the treadmill.

Up and down—down and up—is the monotonous path of this Siamese woman from sunrise 'till sunset. Her very existence, and that of her family, depends upon the tiny stream of water that is excited into action by the paddles of her mill. One holiday for this human workhorse, and the blazing, relentless sun would wilt into uselessness her entire crop.

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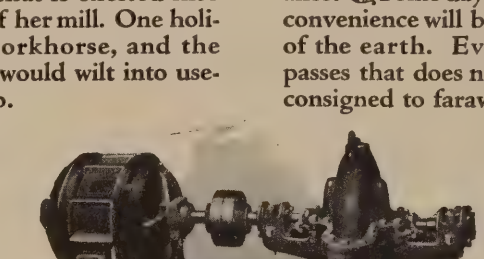

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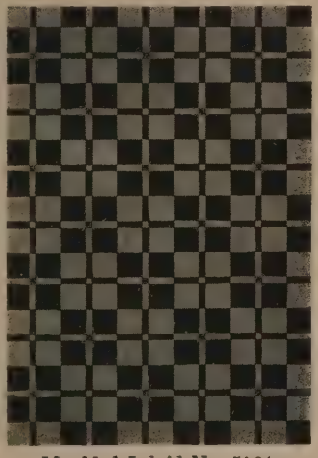
Marble Inlaid No. 78, a twelve-inch block design in two beautiful tones of gray

Room beauty begins with floor beauty

Some interiors are mere accidents, but not the one which is based on a floor of color and design

THE architect or decorator who realizes what style and charm a patterned floor of Armstrong's Linoleum contributes to a room, happily turns a difficult problem into a source of inspiration.



Moulded Inlaid No. 5431

What makes these new floors really beautiful? First, it is their colors—rich, lustrous colors, yet softly subdued colors—colors harmoniously combined to suit any decorative need.

Second, it is their design, their smartly modern patterns conceived by expert designers and approved by decorators and architects as the last word in floor beauty.

There are scores of attractive designs to choose from. Let your imagination have full sway. You will find an Armstrong's Linoleum floor to add just the right touch of color to any decorative scheme you have in mind.

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Let us send you a section of this new Armstrong's Linoleum flooring for your own examination. You will see that the deep rich colors go all the way through to the heavy burlap back. "All the way through" means a tough yet resilient thickness composed of materials noted for their wear-resisting qualities—cork, oxidized linseed oil, and burlap.

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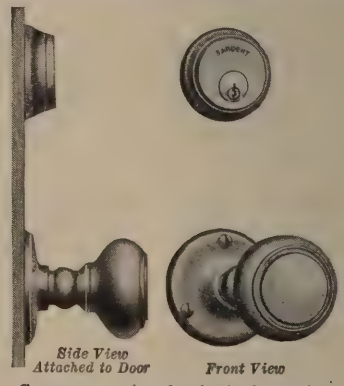

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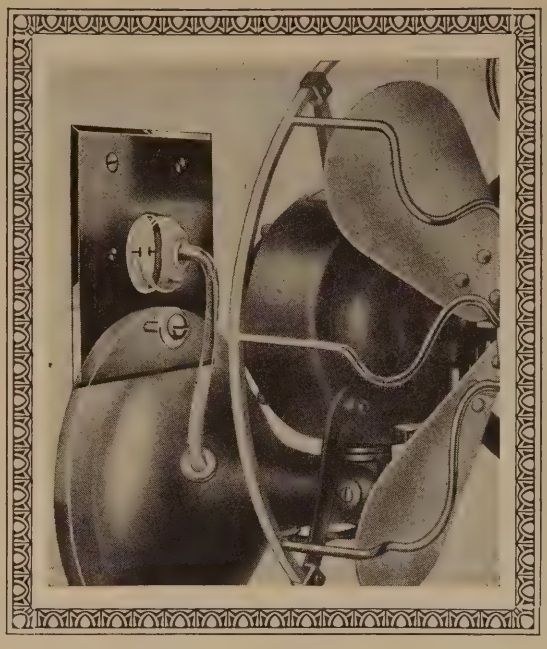

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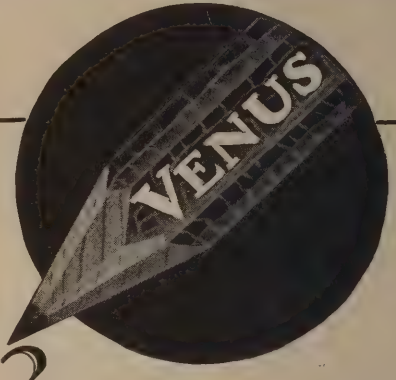

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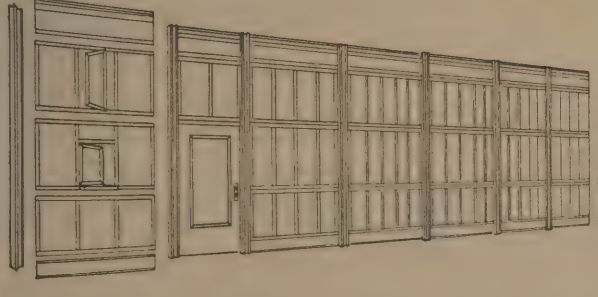

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The Art of Planning Cities and Towns

AS never before in modern times, the planning of cities, towns and villages engages the attention of practitioners and arouses and attracts popular interest. The existence of the art, if art it may be called, comes as something fresh and new, until one discovers that along with most of what makes modern life livable it was inherited from the ancient world, and exists today in a position which compares hardly favorably with that which it occupied in the days of the ancients in any one of many lands.

In this stimulating and helpful volume a close student of town planning presents its history and development in the form of a review or survey. The laying out of towns so that they were beautiful as well as practical was done ages ago in Egypt and indeed in every country of antiquity. Athens, as it grew, could no longer be contained upon the summit of its lofty rock, and expanded upon the surrounding plain, the rock itself becoming what today we might like to call a "civic center," dedicated to Athena and occupied by the buildings, faultlessly designed and skillfully disposed, which are still the admiration of the world. The art of planning cities was passed (along with other agencies of civilization) from Greece to Rome, and was spread by the Romans over all the considerable part of the earth which owned the sway of the Imperial Eagles,—the planning and the imaginative features still Greek, but the practical and regulative part, the organization in other words, Roman. Many old cities in western Europe, notably a number in England, still exist upon the plans which were given them by the Romans when they founded them as outposts of Roman rule upon the then edge of the world. The importance in which planning was held by the Romans may be studied in Vitruvius.

Town planning as it exists today, in America at least, might be said to possess an interest which (alas!) is largely academic. Unfortunately in this modern world cities cannot be established by imperial fiat and developed by governmental decree; villages have an unaccountable and perverse way of springing up and growing first into towns and then into cities, and by the time that it reaches the point where it appreciates having a plan and feels the need of it, the city has been so largely developed and its lines are so firmly fixed that little change is possible in the districts where the need of a plan is greatest. There is probably no part of any city in America which stands more sorely in need of a plan than downtown Boston, and yet to bring any sort of order out of its chaos of a maze of narrow and crooked streets (which it is said were developed from cow paths) would present problems which, though they might be successfully solved on paper and the solution plausibly presented in perspective drawings, would be likely to bankrupt any city administration courageous enough to attempt it. There is encouragement, nevertheless, in the mere fact that the need of city planning and the desire for it are so prevalent today. Any constructive work is necessarily preceded by a desire for betterment, and herein lies much to encourage the planners of cities and towns. Marvelous things can be done in the development of suburban villages, and even if the most closely built up sections of large cities do seem to offer scant ground for hope, there are often park areas or neglected districts which offer opportunities for development,—one such is the extensive beautifying of Boston's frontage on the Charles River, while in Chicago, besides several instances where forlorn districts have been redeemed, there is the filling in of a large part of the lakefront and the making of the area into what bids fair to become a civic center.

Mr. Lanchester deals with his subject with a thoroughness which leaves nothing to be desired. Not only the historical aspect receives attention, but also the relation of the subject of town planning to the world today,—and the need for it has never been so great! Cities in various parts of the world are analyzed, and maps and illustrations are given to encourage more study of them.

THE ART OF TOWN PLANNING. By Henry Vaughan Lanchester. 244 pp., 5¾ x 9 inches. Price $7.50. Charles Scribner's Sons, 597 Fifth Avenue, New York.

Books Reviewed

The Art of Town Planning. *By H. V. Lanchester.*

London Alleys, Byways and Courtyards. *By Alan Stapleton.*

Problems in Architectural Drawing. *By Franklin G. Elwood.*

The Churches of Rome. *By Roger Thynne.*

Concrete Products. *By Wallace R. Harris.*

The Building Labor Calculator. *By Gordon M. Tamblyn.*

English Decoration and Furniture of The Early Renaissance. *By M. Jourdain.*

The Appraisers' and Adjusters' Handbook. *By William Arthur.*

English Architecture at a Glance. *By Frederick Chatterton.*

The Forestry Almanac.

Books Received

Iowa Geological Survey: Vol. XXX

The Story of Architecture, $2. *By P. Leslie Waterhouse (D. Appleton & Co.).*

The Touchstone of Architecture, $3. *By Sir Reginald Blomfield (Oxford University Press).*

GRADE SCHOOL BUILDINGS; BOOK II

IN no department of architecture have the last ten years seen quite the progress which has been made with schoolhouses, a class of buildings of the first importance, since they exert a strong influence upon their communities, and by their architectural excellence or the lack of excellence they elevate or lower the architectural standards of entire districts. Study of school structures, particularly at the hands of a group of well known architects, has resulted in their being given a high degree of architectural distinction and dignity in the way of design, while study directed toward their planning and equipment has led to their being practical and convenient far beyond what was regarded as an advanced standard of efficiency even a few years ago.

Kensington Schoolhouse, Great Neck, N. Y.
Wesley Sherwood Bessell, *Architect*

THIS volume, a companion to another published in 1914, records the results of endless study and experiment in different parts of the country, summed up and presented. By illustrations of exteriors and interiors, by floor plans and carefully written descriptions and articles by well known architects and educators the present high standard of schoolhouse design is made plain, and these results which have been achieved by a few architects and school boards are thus made possible to all architects who are interested in schoolhouse design. The compiler has selected from almost 1000 exteriors and floor plans the school buildings to be illustrated, and the volume records "a process of innovation and elimination, namely, the introduction from time to time of features which have been deemed desirable and practical, and the elimination of things which, owing to changed school methods, are no longer required."

400 pages; 7¾ x 10½ inches
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383 MADISON AVENUE NEW YORK

LONDON ALLEYS, BYWAYS AND COURTYARDS. Drawn and Described by Alan Stapleton. 183 pp., 6½ x 8½ ins. Price $5. Dodd, Mead & Co., New York.

WITH the toll which each year takes from what remains of Old London, there is reduced the number of old buildings which have been accumulated during centuries,—structures in which are exemplified all the architectural styles which have followed one after another since the days of the Tudors. London owes much of its charm and fascination to its plan, or rather its lack of a plan. Much of it was built before the days of town planning and before the invention of the deadly "gridiron" which makes hideous so many American cities, and as London's streets, squares, places and lanes developed apparently by no fixed plan, the buildings which face them were built with apparent defiance of all rules of architecture, and yet they possess charm and distinction which it would be difficult to secure today, when the world's building customs are changed, and design itself is in a state of flux.

Sketches of many old London byways, alleys and courtyards adorn this volume, which has a high value to architects. Not a few of its illustrations afford suggestions which might easily be developed and made the basis of modern design, and the text in which Mr. Stapleton deals with Old London has much of the literary value of writings of the Georgian period.

PROBLEMS IN ARCHITECTURAL DRAWING. By Franklin G. Elwood. 132 pp., 7½ x 10¾. Price $2.25. The Manual Arts Press, Peoria, Ill.

THE difficulty with which many students grasp the details and intricacies of architectural drawing makes welcome such works as aid his understanding. Mr. Elwood's purpose in preparing this volume has been to provide working text calculated to aid the beginner in drawing as well as to assist junior draftsmen in architects' offices, and to help workmen, foremen, and contractors in the building trades who find it desirable to prepare their own drawings or to check those of others.

The volume is divided into two parts. One of these parts consists of text with illustrations and explanations of the best methods employed in drafting and construction, containing also information on typical forms of wood and masonry construction and giving considerable data of practical value. The latter section is made up of several groups of "problems" of widely different kinds, all practical, buildable projects which illustrate well current standard forms of construction in general use.

THE CHURCHES OF ROME. By Roger Thynne. 460 pp., 4½ x 6¾ ins. Illustrated. Price $5. Kegan Paul, Trench, Trubner & Co., London; E. P. Dutton & Co., New York.

AMONG the vast number of churches in Rome there are many which would be considered of the first importance if situated elsewhere than in the Mistress of Cities, which sits enthroned upon its seven hills. To visit even the more famous of the shrines of architectural importance and historical associations would in itself be a task, and possibly to aid the traveler in selecting what are to him the more important of these churches this work, without being in any sense a guide book, has been compiled and issued. It discusses in the most helpful way possible quite a number of the Roman churches, their history and architecture, and the treasures of art of different kinds and of various periods which they contain.

CONCRETE PRODUCTS; Their Manufacture and Use. Compiled, Written and Edited by Wallace R. Harris. Second Edition. 586 pp., 4 x 6½ ins. International Trade Press, Inc., Chicago. For Distribution to Architects on Request.

CONCRETE, a material which proved to be so useful in the hands of the eminently practical Romans, plays each year a more and more important part in present-day building. Knowledge regarding this material is one of the most useful of the gifts left by the antique to the modern world, but building today differs in many respects from that done centuries ago, and with these changes there have come problems which have had to be solved in order that concrete be used to advantage. All this has long engaged the attention of engineers, architects and builders, and concrete, its reinforcing and best use are now so well understood that this adaptable material is being employed in countless ways.

This excellent treatise, as its title suggests, covers the subject in all its many ramifications. Written by the managing editor of *Concrete Products,* who is also a member of numerous societies of engineers, it discusses the use of concrete for actual construction, as well as for making building block, brick, roofing tile, drain tile, sills, lintels, piping, etc. The author's close association with many sources of data and statistics has doubtless aided him in the production of this excellent manual.

THE BUILDING LABOR CALCULATOR. "An Accurate, Rapid and Reliable Cost System for the use of Architects, Contractors, Engineers and Appraisers." By Gordon M. Tamblyn. 4 x 7. Duraflex Binding; Morocco Covers. Price $10. Gordon M. Tamblyn, Sweeney Building, Denver.

IN the relations between the offices of architects who draw plans and specifications and the offices of contractors who carry out actual construction, there are opportunities for frequent misunderstandings. One of the details likely to cause trouble is the lack of close accord between specification writer and contractor, each of whom has his own methods of working. The number of specification writers is large and the number of contractors perhaps even larger, and it is obvious that unless the specification writer fully understands the methods of the particular contractor who is to win the contract and perform the work, and unless the contractor understands the method of figuring by which the specification writer has made his calculations, there is abundant opportunity for mistakes.

Where a contractor is computing the cost of work there are of course two main items to be considered: (1) quantities of materials of various grades and prices, and (2) amounts of labor of different classes, trained and untrained, also varying in grades and prices. Material may be said to be a fixed quantity, measured from the plans, and its quality is fixed by the specifications. Labor is a variable quantity, due to numerous reasons well known to contractors; its unit is the hour.

In this useful work the different departments of building are so divided and each department's work so tabulated according to quantity of materials used, method of construction adopted, and class of labor likely to be employed, that quantities of material or amounts of labor necessary are quickly ascertained, and when multiplied by current prices the cost items are quickly found. The Building Labor Calculator is not intended to be a substitute for the use of good judgment and ordinary precaution in estimating. The author claims, however, that it will safely guide the contractor when making his estimates, and that it is a positive safeguard against erroneously high or low bidding. It practically eliminates the possibility of loss, providing the contractor's construction gang is properly organized.

ENGLISH DECORATION AND FURNITURE OF THE EARLY RENAISSANCE, 1500-1650. By M. Jourdain, 305 pp., 10 x 14 ins. Lavishly illustrated. Price $25. Charles Scribner's Sons, New York.

THE glory of English architecture lies scarcely more in the splendor of its actual building than in the beauty and richness of the accessories which contribute to this splendor. The Renaissance entered England late and penetrated slowly, the reign of the first of the Tudors, Henry VII (1485), finding England not far advanced, as far as architecture was concerned, from what it had been a century before. But the following reign found the Renaissance not only actually in England, but actively at work. Royalty prided itself upon its patronage of all the arts, particularly of architecture, and royalty's emissaries searched all of Europe for the most skilled craftsmen to build and enrich the structures with which royalty presently began to adorn England. Nor were the English nobility slow in following royal example and building upon a scale almost regal. This involved, of course, a brilliant flowering of painting, carving of wood, metal working, staining of glass, and all the arts upon which architecture so largely depends, and this reign and that of Elizabeth saw the triumphs of skill and craftsmanship, which in earlier days had been devoted so lavishly to the service of the Church, now given chiefly to domestic and secular uses.

Such is the subject covered in this, the most recent of a series of excellent volumes on the architecture, decoration and furniture of England during the Renaissance period, and this volume, as its title implies, deals only with the early Renaissance and therefore excludes both the earlier Gothic work and that of Inigo Jones on which English Palladian decoration was based during the early eighteenth century, but its ground is adequately covered.

For centuries the craftsmen of England have excelled in all the arts which play so important a part in building and decoration,—in the plaster or "parge" work, which is so effective and decorative when used in connection with half-timber construction for the exteriors of buildings or when employed in the form of ceilings or friezes for rooms paneled with oak; in glass painting or staining; in metal work of pewter or wrought iron; of embroidery—*opus Anglicanum*—which was sought for in every corner of Europe, and so on through all the list of crafts or liberal arts. These arts were never more vigorous than in the period covered in this work by Miss Jourdain, and her excellent and authoritative text is supplemented by countless illustrations which have been gathered from private and public collections and from buildings in which masterpieces still exist *in situ.*

This volume ranks as Volume I of the "Library of Decorative Art." Volume II is entitled "Decoration in England from 1660 to 1770"; Volume III, "Furniture in England from 1660 to 1760"; while Volume IV, deals with "English Decoration and Furniture of the Later XVIIIth, and the early XIXth Centuries."

THE APPRAISERS' AND ADJUSTERS' HANDBOOK. By William Arthur. 616 pp., 4½ x 7 ins.; Flexibly bound in leather. Price $5. U.P.C. Book Company, Inc., New York.

THE estimating of values as applied to buildings covers, as may be readily seen, considerable ground. It includes, for example, the calculating of costs of erecting new structures, which of course is what is done by contractors in the preparation of bids and, as a wholly different department of the general subject, the business of making appraisals, either for use in the settlement of claims for depreciation, for loss or damage, or in adjustments perhaps of claims connected with insurance matters. The full and complete covering of so broad a topic filled considerably more than 1,000 pages when a revised edition of the author's work, "The New Building Estimators' Handbook," was issued, and as the volume proved to be too bulky for convenient use, the arrangement was altered and the matter which deals with appraising and adjusting was arranged for presentation here.

ENGLISH ARCHITECTURE AT A GLANCE. By Frederick Chatterton. 52 pages. $1.75. G. P. Putnam's Sons, New York.

THE issuing by many publishing houses of works on architecture proves the existence of popular interest in the subject which is both surprising and reassuring. Many of these volumes deal with what might be termed the "elementary" phases of architecture's study, and treat of the names of the architectural styles, their derivation and chief characteristics, all this being matter which of course forms a strong and necessary foundation for later and more extensive study of the subject.

In this little volume, for example, the author discusses the English styles, from the Norman to the late Georgian, when English architecture (in common with architecture over most of the world) might be said to have reached the end of a course of orderly and organic development and to have entered a state of chaos excepting for occasional "revivals" of use of some definite earlier style. The work is one volume of a series on architectural types and furniture which goes with them.

THE FORESTRY ALMANAC. 225 pages. 6 x 8¼ ins. Price $2. American Tree Association, Washington.

FORESTRY, as a science, is comparatively new in America. Our forests, which once covered so large a part of the country's area, appeared to be inexhaustible and more than equal to any demand that could be made upon them; but for more than a century the woodsman's axe has been at work, and as the lumber camps have been pushed farther and farther into the wilderness the forests have vanished before the onslaught of their busy sawmills. Forest fires have also wrought incalculable injury, and disease, which attacks trees as well as human bodies, has been at work in forests as well as in the public parks of large cities, where there is a gradual disappearance of what trees are left after years of neglect.

To correct these ills is the function of forestry. Reasonable care would provide for the constant renewal of the forests, and thus there would be assured a supply of lumber which could never fail. To aid in this movement national and state governments are coöperating, part of their work being the publication of books and magazine articles dealing with forestry. In this volume there is given a complete review of the subject together with a list of trees recommended for different localities.

PROVINCIAL HOUSES IN SPAIN

By Arthur Byne & Mildred Stapley

ARCHITECTS value Spanish types of domestic architecture because of their simplicity of design and plan and also because they are easily developed in materials inexpensive and easily had. Spain offers a choice of several kinds of residence architecture, types sufficiently different from one another to afford considerable range of selection, yet all possessing the same strength and virility, the excellent lines, the same graceful but unaffected grouping, and the discriminating use of detail which renders distinguished so many Spanish domestic buildings.

Houses in various parts of the Spanish peninsula, particularly the buildings of medium size in rural districts or provincial towns, offer excellent precedent for use in different parts of America where climate conditions are about what prevail in the provinces of Spain.

IN this volume two well known writers on Spanish architecture and decoration review the various forms which are given to the small or medium sized house in Spain. To render the work as helpful as possible to architects, the authors have included many plans and drawings of different kinds, details of such exterior parts of buildings as friezes, cornices, windows, timber overhangs, soffits and balconies, or of such interior parts of the structure as ceilings, fireplaces, doors and stairways. Part of the work deals with the tiles, pottery, ironwork, plaster in relief and the other forms of craftsmanship which contribute so much to the excellence of domestic architecture in Spain. It is a work likely to be invaluable to the designer.

The book contains text and 190 plates 12½x16 inches, and is bound in cloth. Price $25, postpaid.

ROGERS & MANSON COMPANY, 383 Madison Avenue, New York

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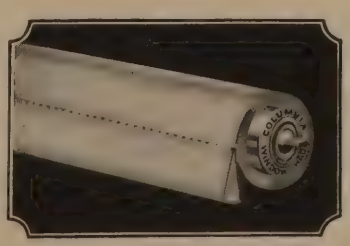

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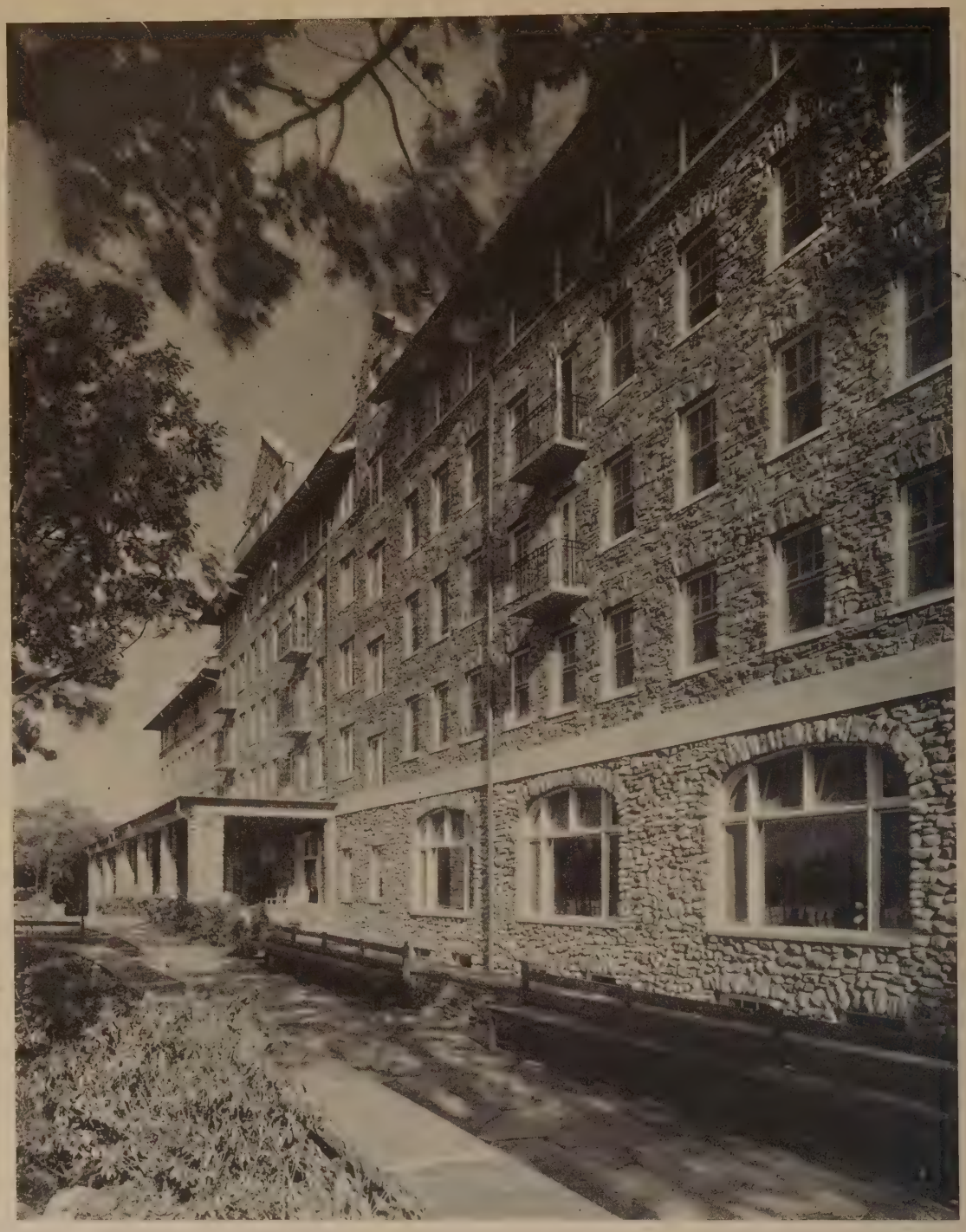

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The ARCHITECTURAL FORUM

VOLUME XLIII NUMBER 2

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PARKER MORSE HOOPER, Editor

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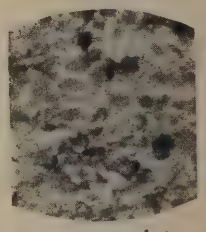

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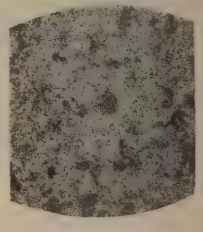

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THE EDITOR'S FORUM

SUCCESS OF METROPOLITAN APARTMENTS

THE Metropolitan Life Insurance Company's experiment in Queens County of constructing and maintaining apartment houses at a rental of $9 a room has brought a net return of 9.251 per cent during the first year of operation, the Company declared in a statement issued recently. Fifty-four apartment dwellings were built, involving an expenditure of $7,363,168 and providing home accommodations to 2,125 families. The building operation was entered into to relieve the post-war congestion in housing, under an amendment to the insurance laws enacted by the New York legislature in 1922 in order to make such a venture possible.

No allowances were made by the Company on its estimates for loss of rentals and vacancies, which is usual with real estate operators. It was figured by the insurance officials that the low rentals would practically eliminate this item. That this assumption was correct was shown by the fact that only $406 was lost through this cause, a percentage almost negligible.

SIXTEENTH CENTURY GLASS

RALPH ADAMS CRAM contributes a foreword to a brochure illustrating and describing the fine windows of Flemish glass recently installed in the Park Avenue Baptist Church, New York. The glass, essentially Renaissance in character, comes apparently from that part of Flanders lying between Bruges and Antwerp, and inasmuch as all the 16 panels are of the same size, uniform in scale, and deal with one subject (the Life of Our Lord) it is evident that they were made by one craftsman for use in one place.

Excellent illustrations in half-tone aid the student of old glass in forming a correct appreciation of the windows, which are fully deserving of careful study.

STRUCTURAL SOCIETY FORMED

AN organization known as the Structural Society of New York has been formed, whose members are directly connected with different branches of the building business, such as architects, engineers, draftsmen, contractors, estimators, structural superintendents, etc. The Society would be pleased to receive catalogs and publications of interest for its library. The secretary is Sidney Kitzler, 112 Haven Avenue, New York, to whom communications are addressed and to whom contributions are sent.

THE HARDING MEMORIAL AWARD

ACCEPTANCE has been made of the designs and plans by Henry Hornbostel and Eric Fisher Wood, of Pittsburgh, for the Harding Memorial, to be erected at Marion, Ohio, to the memory of the late President. The designs of the four architectural firms invited to compete were on exhibition during the third week of July at the Grand Central Galleries, New York, where the beautiful rendering of the designs submitted by John Russell Pope was greatly admired.

MEDALS FOR YOUNG ARCHITECTS

SIXTEEN students in as many colleges have been awarded the 1925 school medal for excellence in architecture by the American Institute of Architects. The winners were nominated by their college faculties and were presented with copies of Henry Adams' book, "Mont St. Michel and Chartres," and the silver medals on which were inscribed their names.

This year's winners are Stuart M. Shaw, Columbia; Roy E. Vickers, Ohio State; Arnold R. Southwell, Oregon University; W. Dexter Edgarton, Syracuse; Richard J. Pearce, University of Washington at Seattle; Alvin E. Rigg, Minnesota; Willis J. McCauley, Armour Institute; Homer Fay Pfeiffer, Illinois; Gilbert Geery, University of Kansas; Norman K. Blanchard, University of California; Norman L. Roberts, Kansas State Agricultural College; Wayne F. Koppes, Carnegie Institute; Frederic Faris, Cornell; Harold Theodore Spitznagel, University of Pennsylvania; Walter Herbert Schilling, Yale, and Roger P. Moore, of the Massachusetts Institute of Technology.

AN OMISSION

BY an oversight the name of C. Godfrey Poggi, of Elizabeth, N. J., was omitted from the illustrations and plans of the Elizabeth *Daily Journal* Building published in the July FORUM. Of this structure Hollingsworth & Bragdon and Mr. Poggi were the associated architects and should receive credit.

COOLING SYSTEMS

THE American Society of Refrigerating Engineers, 154 Nassau St., New York has published a reprint of an address on "Cooling Systems of Buildings" delivered at a meeting of the society by A. M. Feldman, Consulting Engineer. The address deals with the practical value of such equipment, and discusses the working of cooling apparatus in hospitals, residences and buildings of other kinds.

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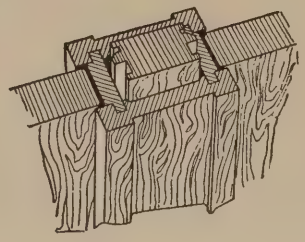

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The
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Volume XLIII AUGUST 1925 Number 2

The Maryland War Memorial, Baltimore

LAWRENCE HALL FOWLER, ARCHITECT

By JOHN H. SCARFF

ON November 11, 1920, the second anniversary of the signing of the Armistice, the Mayor of Baltimore approved an ordinance intended "to create a commission to determine upon and to erect a memorial within the state to the men and women of Maryland who gave their lives for their country in the military and naval service in the World War, and to commemorate the service of all other men and women who were engaged in the military or naval service in the War." The ordinance further provided that the commission should consist of seven members, authorized and empowered to act in conjunction with the similar committee previously appointed by the Governor.

The Memorial Commission of the State of Maryland and the Soldiers, Sailors and Marines Memorial Committee of Baltimore City, having been duly appointed, at a joint meeting agreed to act together as a joint commission for the erection of a memorial building. Following the advice of the Baltimore Chapter of the American Institute of Architects as to the advisable procedure for the conducting of a successful architectural competition, this joint commission selected as its architectural adviser Waddy B. Wood, of Washington, and instructed him to prepare a program for an architectural competition, and to assist and advise in its being carried out. The Commission selected to enter the competition 24 architectural firms of the State of Maryland, together with John Russell Pope, Henry Bacon, Cass Gilbert, Carrere & Hastings of New York, and Day & Klauder of Philadelphia. The jury of award, appointed by the Commission from its own members, consisted of E. Brook Lee and Hugh H. Young, representing the state, and Harry C. Jones and John R. King, representing the city, together with Paul Cret, Architect, University of Pennsylvania, Albert Lewis Harris, Architect, of the District of Columbia, and Edward A. Crane of the firm of Rankin, Kellogg & Crane, Architects, of Philadelphia. Such was its personnel.

Cost was an important factor in the competition. The published program set forth that no design of a building would be considered that in the opinion of the jury could not be built for $900,000. No limit was put upon the cubage of the structure. The mandatory requirements of the program were: An auditorium or memorial hall "as large as compatible with the general scheme of the building"; a memorial lobby; general executive offices; one or two assembly rooms, and the various service departments, with the exception of the heating plant, which would be located in another city building. All these rooms were to be on two floors. Twenty designs were submitted to the jury of the Commission, and on October 17, 1921, by unanimous selection of the jury, the award was made to Lawrence Hall Fowler.

The site selected is near the business center of Baltimore, on the opposite side from the City Hall of a newly created open square. The building faces streets on the front and the two sides. A municipal office building is being placed behind, and facing away from the War Memorial. It is hoped that eventually the city will acquire all the property bordering this square, and that properly designed and related buildings will be placed entirely around this civic center. This is made all the more desirable because the width of the Memorial Building is considerably less than the distance between the streets bordering it, so that eventually it will count as a building within a large open area, at least two blocks long by one wide. The completed building was dedicated April 5, 1925, with appropriate ceremonies participated in by the officials of both the state and the city, various patriotic, military and naval organizations of the nation and state, and representatives of the different nations associated with the United States during the late War.

The Memorial is built of Indiana limestone, and is in plan a simple rectangle of 102 by 188 feet. The first floor is raised above the ground on a high base, and is treated with a Greek Doric order 49 feet high, the columns themselves being 39 feet high. On the main facade is a portico with six columns, and on the sides and rear are pilasters framing small windows high up in the wall. Above the order is a plain expanse of wall surmounted by a cornice and stone cresting. In the frieze around the building are carved the names of the 24 counties of Maryland, and on the architrave over the main entrance is

Stairway Down to Trophy Hall

Organ Screen in Auditorium

the motto of the state,—"Fatti Maschi Parole Femine." Behind the columns is the dedicatory inscription:

To the Citizens of Maryland
Who Gave Their Lives
And Service in the World War.
By the State of
Maryland
and the City of Baltimore.

The space from the building line to the sidewalk is treated with steps, broad terraces, benches and planting placed on each side of the entrance portico.

Through the three entrance doors one passes directly into a vestibule, which is very effectively lined with Missouri porphyry in large slabs, both walls and ceiling. One then passes into the main auditorium, which takes up practically the whole of the first floor. A broad flight of stairs leads from directly opposite the center entrance to the trophy room on the lower floor, and from each side to the main auditorium at a higher level. At one end of this large and imposing room is the platform with an organ screen above and behind it, and at the other end a gallery. Around the entire room there

The Entrance Vestibule

Platform Doorway, Auditorium

Detail, End of Platform

Entrance Stairs, Auditorium

extends a graceful and freely treated Corinthian order, raised on a high Tavarnelle base on which are to be cut the names of those Marylanders who lost their lives in the War. On the side, high up between the three-quarter columns, are beautiful leaded windows, glazed with slightly tinted glass. Under the windows in the square panels above the base are round shields bearing the insignia of the different divisions of the army, principally those in which there were Maryland troops. The central portion of the main floor is depressed about 2 feet below the outer edge along the walls. This raised portion of the floor serves as a communicating passage from the front to the back of the hall. The ceiling is plaster, painted. The great central panel, as large as the central floor space, is plain sky blue, and that portion above the communicating passage is beamed and tinted in soft shades of terra cotta and gray.

Apart from the grace and distinguished dignity of the main auditorium, color is its principal charm. The walls are carried out in the warm shades of the Tavarnelle base. The ceiling is of exquisite blue with warm reds, grays and yellows. The leaded windows are greenish white, and the round decorative

Steps to Entrance Terrace

Stalls and Stairs, Auditorium

shields are pewter and pale gold,—like the organ screens. The rear wall of the gallery back of the free-standing columns repeats the terra cotta of the ceiling. The floor is carried out in several shades of sea green terrazzo, and the parapet and stairs are capped with Belgian black marble. The room gains immensely from the fact that there are no fixed seats. Mr. Fowler, with his accustomed attention to detail, has designed beautiful benches in American gum, and simple cane-seated chairs are used when capacity seating is required. The entire room is marked by charm and simple dignity. The detail is carefully thought out, and although it preserves the spirit of Classic architecture, it is freely handled. Delightful color makes the whole room glow, and color has been used with the greatest skill to explain and accent form, and to give interest and unity to the whole design.

The room of the building second in importance is the large trophy room in the lower story, reached by a broad flight of steps from the auditorium, or directly from the street through side entrances. A Pompeian Ionic order surrounds the room and supports a simple beamed ceiling. The base of each column is a dark porphyry drum about one-third the height of the column. The plaster beams of the ceiling are decorated with simple panels picked out in primitive colors. Opening out of this hall, and separated from it only by one line of columns, is an assembly room capable of seating 300. The two rooms may be thrown together by opening a sliding partition behind the columns. The woodwork here, as in the rest of the building, is American gum. Filling in the four corners of the plan are several committee rooms or offices, which open into corridors running parallel to the long axis of the building. These small committee rooms, although extremely simple, are by no means the least interesting part of the building. Mr. Fowler has painted the walls in the most delightful way, using bright but very simple colors,—blue-greens and yellows. The trim and bases are wood, and the floors are of terrazzo. The mechanical plant is located in the front portion of the ground floor under the entrance lobby, and a kitchen and pantries are in a basement.

The Memorial, both outside and inside, is marked by the most dignified simplicity,—on the outside by a simplicity that borders almost on the too severe. This was perhaps the result of the extreme importance in the architectural program placed upon cost. The architect, to soften the silhouette of the building, has placed upon the four corners *acroteria;* but the uncompromising mass of the building remains. If the present writer may be so bold in his criticism, he would say that the exterior treatment of the basement story is weak and inadequately suggests the strength necessary to support the building above, and the treatment of the order on the side wall is not sufficiently bold in scale to be properly related to the order of the portico and the heavy weight of the wall above. As for the interior, the parapets arranged around the combination of stairs immediately inside the main entrance seem unnecessarily high, and in one or two places the contrast of materials is not the happiest. The two black marble vases on the parapet serve a questionable end. Mr. Fowler hopes to see placed on the wall back of the columns in front of the gallery a mural painting.

Adverse criticism is given with but a sporting intent, and it in no way lessens the writer's sincere admiration of the fine spirit of the monument, which in its great effectiveness and beauty reflects great credit upon the state and city that made is possible, and upon the architect who brought it into being.

The Auditorium, Known as Memorial Hall

Banks and Bank Buildings; Part I.

By ALFRED HOPKINS

A NEW building is the bank's best bid for business. This may not come with as much force from the architect as it should, because his function always credits him with the wish to promote that idea. But such is the fact, nevertheless, and to any banker who has gone through the ordeal of building with any degree of comfort, it remains indisputable. Not long ago a financier from abroad came to America and ridiculed the banks in the smaller cities, buildings—as he described them—which are stone and marble mausoleums. He wanted to know why it was done. The answer is simple and entirely adequate: because they bring business. If fake concerns can thrive luxuriantly for awhile in offices which give to the casual customer the impression of stability and integrity, why should not a legitimate business benefit in like surroundings? And the answer to that is the best of answers: that it does.

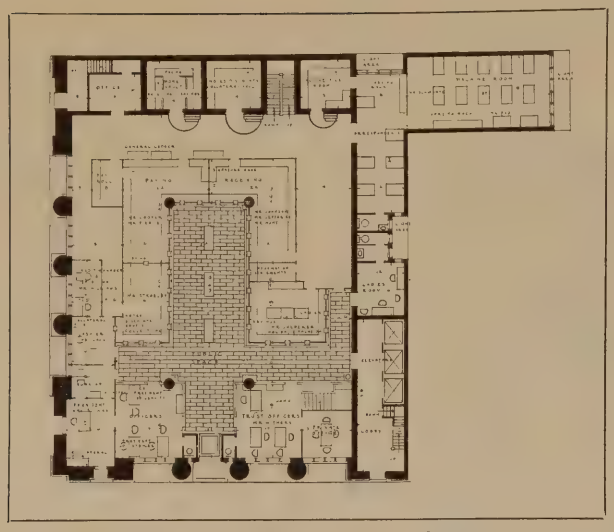
Savings Deposit Bank & Trust Co., Elyria, N. Y.

Alfred Hopkins, Architect

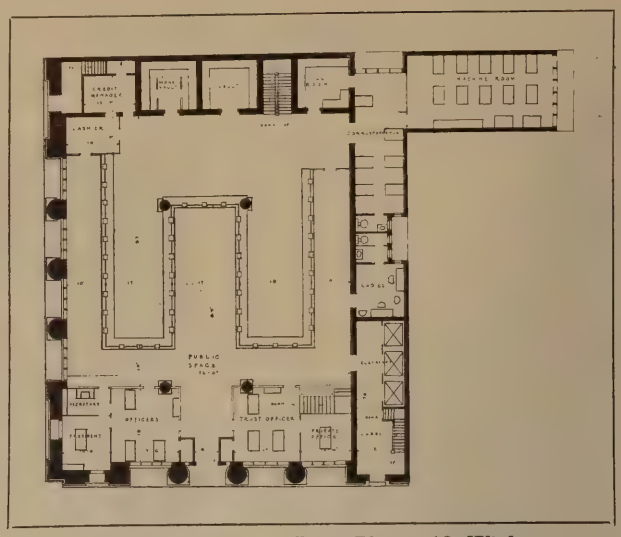
The Lot. But before we take up the building proper, there is one thing (with which the architect seldom has anything to do) that should have careful consideration, and that is the lot. A good location is just as necessary for the bank as for the merchant. The merchant has always been willing to pay for the right place to do business, because it brings him trade. The banker must set his mind to the same thing, and for the same reason; it is just as necessary for the one as for the other to be available to the public. The bank should acquire the best location possible and pay the price for it,—not only the best in point of situation, but also in point of area. I think it is safe to say that nine out of ten banks build too small. My experience, as one who has come in contact with many such problems, is that the average banker when he completes his new structure feels that he is secure for 20 years. At the end of five, we find he has entirely outgrown his quarters, and is probably already holding secret conversations with John Doe about acquiring the adjoining property. Get a good lot, and forget its extra cost. It will prove true economy in the end.

Now as for sizes; 50 feet in width will suffice, though 54 or 56 is very much better. The few extra feet may be put into the public lobby, and nowhere is space more useful than it is there. Then for property depth, 100 or 150 feet, for it is always desirable to have available area at the rear. In a width of 56 feet a single expansion of the screen can be made. Generally there is not the urgent necessity for a width greater than this, up to 70 or 75 feet. In 70 feet or over a double expansion of the screen may be made, and a lot this wide need not be proportionately so deep. But a wide lot is always an advantage. From the very inception of the plan, the possibility of future expansion should be had in mind. It is a matter of importance.

Expansion. We have said that from the very inception of the plan the possibility of future expansion should be made certain. While the various plans will show how this may be done, by the rearrangement of the screen, officers' quarters, work space, etc., there is one general principle involved which it is well to keep in mind at the start,—that the bank's growth will be through its contact with the public on the first floor, and that there will never be too much area available there. Consequently, any department which can go into the basement should be put there, and among the first things to be relegated to this location are the vaults. The bankers in the smaller cities have been a little reluctant to accept this view, and as a result we usually find the vaults in the very center of things on the banking floors,—of course with the great doors as an important advertising asset. This is all very well for a few years, but usually having such an arrangement is a great mistake. There is nothing which so complicates future expansion on the main floor as the safe deposit vault, and particularly in a central location. With the safe deposit vault in the basement there is more space to provide the necessary accommodations in the way of coupon booths, consultation rooms, etc. A larger vault may be constructed in the basement and expansion for the safe deposit department provided, which is just as important as expansion anywhere else. With the increased area available, a vault for trunk and silver storage may be had. This is coming to be more and more a service which the bank gives its customers, and in some localities it is one of the essentials of the safe deposit department,—and I have no doubt that providing cold storage will some day be one of the



First Floor Plan—27 Wickets



Expansion of First Floor Plan—42 Wickets

The Mechanics' National Bank, Trenton, N. J.
Alfred Hopkins, Architect

regular features of this service. The basement is also an excellent location for the women's room, much better than the first floor, where it has been the custom to place it. There is a relation between the trust department and the vault, where its securities are kept, that makes the basement available for that purpose, either in the first instance or or as a result of necessary expansion. Public conference rooms are appropriately placed in the basement, and in some communities they are a valued accommodation to the bank's clients. The bank having a large foreign department always finds the basement available for it. But the essential thing to get off the main floor is the vault. With that in the basement, the whole task of arranging the plan has been greatly simplified. Expansion may now be provided, and the best type of plan determined.

Types of Plan. A few years ago there was some controversy as to which was the best of the two or three possible plans. The "U-plan" or the "island plan," so called. For a savings bank, the island plan does very well, and in some instances it is the best for that type of institution; but in the commercial bank the U-plan has generally been adopted, and it is better than any other arrangement. To begin with, the public is more easily distributed, directed and accommodated. Service is more easily rendered, and the effect on coming into the building and looking down into a wide public area is ever so much better. As to the width of the public space, 18 feet is perhaps a minimum width; 20 feet is better, 22 excellent, and 24 feet in width gives a real bank, dignified and practical in every way.

The best location for the officers is at the front of the building. In some modern banks they have been put in the rear. This is not a good plan for two reasons: they are not so accessible to the public, and the officers' open area at the front greatly enhances the effect of space to those entering the bank. It is well, therefore, to make the officers' quarters commodious, and to have the screen start as far back from the entrance as will accommodate the number of wickets desired. When it comes time for expansion, the officers' space may be utilized for the screen, and the officers may be moved to a balcony. As a matter of fact, a low balcony for the executives has proved to be a very good place for them. This position keeps the small business down on the first floor, where it properly belongs, and permits the officials of the bank to give their time to more important matters. In every instance where we have carried this idea out (always as a result of necessary expansion), it has worked well.

Screen Expansion. Of course the great factor in the bank's expansion is the screen. The possibility of altering its arrangement is one of the prime essentials of good bank planning. Such portions as are intended to be moved should be so designed as to be easily removable, and the marble work is best backed up with slate and set up on channel irons. The joints and miters should all be arranged for at the start, so that extra sections of screen may be put in with the least inconvenience. In fact it is sometimes well to purchase additional wickets for converting inactive sections of the screen into active cages. It is frequently convenient to place consultation rooms or offices behind the screen at the start, as these are the easiest to make over into cages. The screen is best made of bronze because it can be made lighter. It should obstruct the eye as little as possible. The lighter it is the less it counts as an element of construction; and the more it becomes a matter of furnishing, the less reason there is for having architectural symmetry. There is no need, therefore, to have the screen start at the same distance from the wall on each side of the room. It is to a great extent a matter of convenience.

Location of Departments. With regard to the location of the various departments, this must be gone into carefully to suit individual requirements.

There are some general rules which usually apply, however. The note cage adjoins the officers' quarters. There is one theory which puts the paying tellers on one side of the public space and the receiving tellers on the other, but not directly opposite one another. When the public area is contracted, this distributes the lines and sometimes prevents congestion. On the other hand, it is well to put the paying and receiving tellers, who are always the busiest, where they receive the most advantageous light. This should come from the side or back. It is trying to have to face the light all day. If the building is lighted on one side, then all the tellers are better on that side. The public likes this arrangement too. With a wide public space, any arrangement of tellers may be had, and there is no advantage in putting the paying and receiving cages on opposite sides. The savings department is well placed on one side, so that the lines to its windows may be separate, and that its customers may come in and go out with as little interference with the commercial part of the bank as possible. These departments are best apart.

Workroom. The smaller city bank prefers to have the workroom on the first floor. This is a good place for it, provided there is area enough. The workroom located here should be so designed that it can be taken out eventually and the space used to enlarge the banking room. The metropolitan banks, of course, have all their workrooms on the upper floors, and it is entirely satisfactory to locate them there even for the smaller institutions. The telautograph, the pneumatic chute, the electric lift. intercommunicating telephones, etc., make the second story workroom accessible and convenient. In fact many bankers in the smaller cities have told me that they prefer to have the bookkeepers out of the banking rooms. The written word between the tellers and the bookkeeping department is a better record than the spoken. Mistakes are less likely to happen. If the workroom is put off the main floor, it is better on a floor entirely by itself. This work should never be done on open balconies in the banking rooms. Such balconies are noisy, always spoil the architecture, detract from the dignity of the interior, and are usually poorly ventilated, old fashioned and generally out of date. The workroom should be a self-contained room, treated acoustically so that it will not be noisy, and if this is adequately done it is not necessary, in the average bank, to provide a separate machine room. There should be in connection with the workroom, emergency toilets for both sexes, a drinking water fountain, and one if not two wash basins, depending on the number of employes. Usually it is better for the pneumatic tube service to deliver at the center of the workroom, where the bookkeepers may be on one side and the transit department on the other, all items going to either one department or the other in an orderly way. While

Adirondack Trust Co., Saratoga Springs, N. Y.
Alfred Hopkins, Architect

Officers' Space, Suffern National Bank

Suffern National Bank, Suffern, N. Y.

Alfred Hopkins, Architect

the pneumatic tube is entirely practical and satisfactory, it is not a bad idea to put in an electric lift as an emergency feature. It will often be useful.

Stationery. One thing the importance of which is usually under-estimated and forgotten about in the bank building is having proper facilities for taking care of the stationery. Bank stationery is very important, and its cost frequently runs into considerable money. Even small banks will have five, six or eight thousand dollars' worth of stationery, while the larger banks have anywhere from forty to sixty thousand dollars invested in stationery; in fact, a bank's stock of stationery is frequently larger and more valuable than that of any stationery store in town. For this reason it must have a proper place for its being received, unpacked and stored. The proper place for its entrance is not the front door. Stationery should be delivered to and unpacked in the basement, where the empty boxes may be conveniently burned in the boiler room, and the contents put upon the elevator if the stationery room is on an upper floor. We have frequently tried to work out storage for stationery in the workroom itself, but it is impossible to make this a shipshape arrangement. Stationery is very disorderly in appearance (though it should not be), and having a separate room is after all the best way of providing for it, wherever possible.

Luncheon Rooms. Another accessory of the bank, frequently very desirable, is a luncheon room, or a small kitchenette where luncheons may be cooked. In the smaller cities banks are now coming to provide luncheon for their employes. The usual arrangement is that the bank gives the luncheon and the employe gives half of the luncheon hour for it. Good home cooking is very much better than the restaurant food which the employe gets in the city. All the large banks find it greatly to their advantage to provide such service. The big metropolitan institutions do this invariably, and in many the rule that employes have luncheon in the building is more or less strictly enforced.

Cloak Rooms. As was said before, it is not well to place the lavatories, cloak rooms, etc., in the basement. There is not enough light or ventilation there, and in basement rooms wet garments are slow to dry out. One of the rear mezzanines is an excellent place for such rooms as experience proves.

Bank Design. As to the bank's exterior design, good architecture here is a valuable commercial asset. A dignified, Classical building creates in the public mind a feeling of respect and confidence for the institution so housed, but there should be certain features very necessary from the bank's point of view and which are also very appropriate to such architecture. Among these are good large windows, to let as much light into the bank as possible and to permit the man in the street to see in as much as possible. There is no better advertising for the bank than its building. Large windows permit a good view of the interior from the outside, and especially at night when the building should be brilliantly lighted. The bank has long been unwelcome in the merchandising district be-

High Attic Walls Provide Space for Lettering. City National Bank, Binghamton, N. Y.
Alfred Hopkins, Architect

cause it creates "a dark corner." There is not the slightest reason for the bank's being dark at night. In fact this policy is particularly stupid. Many banks burn up vast amounts of current in large electric signs upon the roofs, while the buildings on the street are dark. Reverse this policy. Light up the interior of the building, and let the public take a look at the institution. It is sure to pay.

Reverting again to the value of the public's looking into the bank from the street, it is absolutely important to do away with the commercial bank builders' never-failing habit of putting the directors' room across the front of the building, and entering under this in a low story which usually encloses a customers' space on one side of the entrance door, with a women's room on the

Decorative Treatment of Old Ledgers in Enclosed Bookcases. Directors' Room, City National Bank, Binghamton

Door of Directors' Room on Balcony Overlooks Main Banking Room, City National Bank, Binghamton

other. This shuts off the front of the bank from public view in the worst possible way. The mezzanine is very useful in bank construction, but it should always be at the back of the building and never at the front. In almost every instance it is well to take consultation rooms away from the front windows and put them either back of the screen, if the lot is wide enough, or incorporate them as part of the screen. As a matter of fact, the average banker is likely to overestimate the real necessity for having consultation rooms. All the great metropolitan banks do their business out in the open, and having a dignified officers' space as large as possible is always a great advantage to a bank.

A Specific Example. As the new building for the City National Bank at Binghamton, N. Y., is a carefully planned structure and was designed along the lines here indicated, I would like to give a detailed description of it as illustrating the principles set forth here. The problem was to design a substantial building from the point of view of the exterior. It had to be an "individual" structure, the lot not being of sufficient area to be advantageous for an office building, and it was necessary to build on this corner something that would always hold its own with any buildings which might be built near it. A proper height was absolutely necessary, and in view of the necessity of having large windows below, the only way to secure a dignified effect was to rely on masonry above, adopting precisely the same scheme of design which the Romans used for their triumphal arches. Consequently, heavy attic walls (the architects' name for wide masonry areas which come above the main cornice line of his building) were essential. How to get a well lighted and well ventilated workroom and include this feature was the problem. The workroom was therefore set back behind the solid outside walls some 6 feet. By this arrangement it was easy to fill the workroom walls with windows, which would not have been possible if the workroom had been extended to the outside of the building. Here the windows would have had to be treated architecturally and not commercially, and here skylights were out of the question. It would seem at first that the blank outside walls, only 6 feet away, might make the workroom dark, and that sufficient light would not get in between the outside walls and the workroom walls. This happily proved not to be the case; in fact the outside walls do not seem to darken the workroom at all, and if they were removed altogether the workroom would be very little lighter than it is now. It is amply lighted with numerous windows on all four sides, and is ideally ventilated. This is really an excellent arrangement for a workroom in an individual bank building. In fact the entire plan of this bank may be studied to advantage. The area was small, smaller than we wanted, so it was necessary to take advantage of every square foot of land. The safe deposit department was put in the basement story, together with the women's room and the trunk storage department as well.

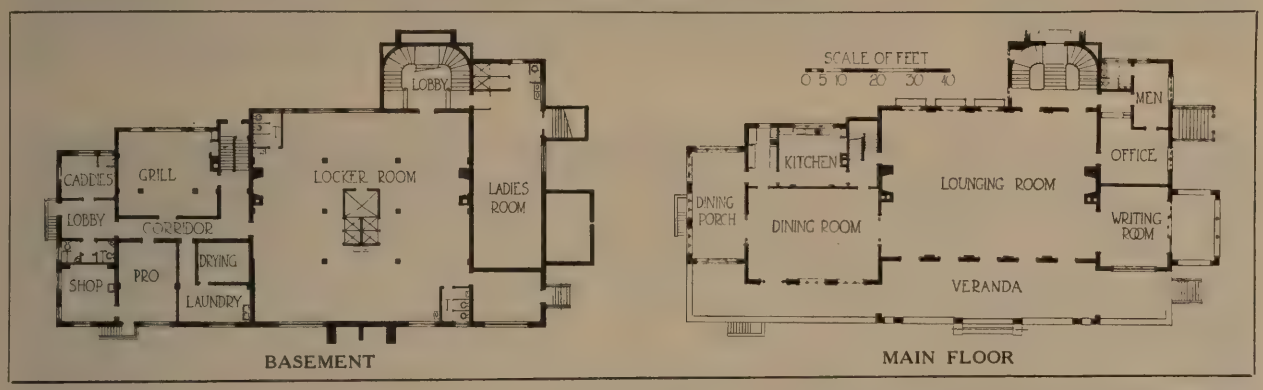
Section Through City National Bank, Binghamton, N. Y., Showing Workroom on Roof

The main banking room has a height of 35 feet in the clear, and has been laid out to provide for future expansion. The president's office at the side is just wide enough to provide at some time for two cages, and the extra wickets necessary were furnished by the bronze contractor for this purpose. On the other side, doing away with the officers' quarters, the screen is planned to extend toward the front, leaving only enough place for a stairway to the future officers' balcony. The directors' room was put on a mezzanine at the rear and has excellent ventilation. A new idea was tried out here, and it has been very generally commended. Instead of having a long table with chairs around it, in the usual way, it was determined to make this directors' room more of a library in effect. It is fitted with comfortable chairs, writing desk, sofa and a table only large enough to accommodate the presiding officer and the secretary. Not the least interesting feature of its decoration is the bookcase at the end, holding the old ledgers and cash books, which go back to 1852. This arrangement of the directors' room has been popular from the beginning, and is one of the bank's most successful details. It is as different as possible from the usual, conventional board room.

The Country Club, Roanoke, Va.

SMITHEY & TARDY, ARCHITECTS

VIEW OF THE ENTRANCE FRONT



BASEMENT

MAIN FLOOR

THE CLUBHOUSE AS IT OVERLOOKS THE GOLF LINKS

THE LOUNGING ROOM

DINING ROOM

THE COUNTRY CLUB, ROANOKE, VA.

SMITHEY & TARDY, ARCHITECTS

The Community Playhouse, Pasadena

ELMER GREY, ARCHITECT

By MARGARET CRAIG

THE new Pasadena Playhouse will undoubtedly become the prototype of many a community theater throughout the country. Its beauty of architectural treatment alone is enough to afford inspiration to those seeking a model of a small, modern theater structure. It is built in the version of the Spanish style known as "early Californian" architecture, and its white, hand-troweled plaster walls, rising in even tiers from the entrance courtyard to the lofty stagehouse in the rear, are very dazzling against the blue sky of southern California.

Elmer Grey, the architect, has given to the building much of the quality that is so closely woven into the warp and woof of the drama itself,—humanism, poetry, and aspiration,—and he has achieved in his work the closest correlation of fine proportion, a varied rhythm, and a noteworthy regard for the subordination of details, as well as for the correct dignity of climaxes. The development of the dramatic institution it houses, with all of its affiliated departments, has been logical and always marked by the feeling of simplicity and sincerity, and Mr. Grey has expressed much the same qualities in the building, discarding the unnecessary ornamentation that is so common in theater construction, and relying on the beauty of line as exemplified in the outside stairway, as it swings to the upper story, and on a plan providing for the serving of one function, affording a suitable center for community interests.

Although the auditorium is set well back from the street, it has by way of introduction a most inviting court, with shops on either side, and a covered arcade that borders it on the north and leads to the main portico that gives access to the series of entrance doors. It is a hospitable courtyard, and fittingly indicates the spirit of this communal organization. On every side are arcades and colonnades; a brightly colored tile fountain graces one corner, and a romantic stairway curves easily to the balustrade that is above the entrance arcade. Potted plants from semi-arid and tropical regions are grouped at the bases of the pillars along the top of the balustrade and around the roots of the tall palm trees. The court is paved with golden-hued flagstones that possess an unusual texture, due to the uneven cutting of the stones. The stairway, an important feature of the exterior, rises to the long passage above, where are found a recital hall, and numerous business offices of the governing directors, the play director and their associates, publicity men and the managing committees. From this center the access to the auditorium is easy, the stage and the workrooms being beneath on the first floor.

Returning to the court, and passing through the main arches of the arcade, which are especially marked with massive wrought iron lanterns, one reaches the line of entrance doors that open into the foyer. Its walls are of broken tones of blue-green;

One Side of the Entrance Courtyard, Community Playhouse, Pasadena

Elmer Grey, Architect

STAIRS TO BALCONY

DETAIL, BALCONY PARAPET

COMMUNITY PLAYHOUSE, PASADENA
ELMER GREY, ARCHITECT

ENTRANCE AND BALCONY STAIRS

THE ENTRANCE CLOISTER

COMMUNITY PLAYHOUSE, PASADENA

ELMER GREY, ARCHITECT

the ceiling, of a still darker value, of cement simulating wood, having been pressed by wooden beams before it was dry. The ornamentation is of richly colored flowers and fruit in oils, slightly toned down with uneven lines of gold leaf. Four doors, hung with heavy, dark velvet curtains, open into the auditorium, and disclose the beauty beyond. The lines of the interior decoration swing around to the stage, and it is not surprising that the painted drop curtain is the first thing to challenge the eye of the visitor. The subject is a huge galleon floating in a sea of ultramarine blue, streaked with dashes of reds and yellows. The ship stands out against a brownish cloud that is shot through with a burst of golden sunshine. It was painted by Alson Clark, of Pasadena, and was a gift to the Playhouse.

Other notable features of the interior are the balcony which curves around to the two boxes built at the sides of the stage, and the ceiling that in its broad expanse of colorful patterns resembles a bed of larkspur when lighted by a summer sun. The deep coves of the ceiling are arched, and in this way form reflecting surfaces of indirect light. The boxes have shell-like tops, and are decorated in blue and gold. They enclose wrought iron grilles and windows at the second story level. To decorate the side wall spaces there are two windows, framed by borders of terra cotta in relief and hung with velvet curtains. The floor of the stage extends out over the orchestra pit and is reached by steps from the first row of chairs. At either side of the orchestra pit are slightly sloping passageways that lead to the green room on the other side of the stage.

The green room, of a truly Drury Lane character, is an important detail of the theater, and it is destined to exert influences that are important not only for the actors but for the community. It is used as a social center, and for entertainments more or less connected with the drama. Large mirrors occupy the important wall spaces, and between them are red lacquered doors that open into numerous dressing rooms, all well equipped with modern lighting and connected with signal bells. In connection with the green room are the departments for making-up, for the showers, and the kitchen and lockers used by the musicians and ushers. In the north wing, close at hand and easily reached from every part of the building, are the workrooms where many of the costumes are made, where the properties are stored, and where the textiles are dyed for the stage sets. Altogether, the building serves every useful purpose without sacrificing the beauty of architecture. It is a structure that possesses æsthetic value as well as being in accord with the fundamental laws of fine spacing and unified arrangement, and it possesses important qualities that enhance the prevailing sense of comfort and harmony.

The entire cost of the building and its equipment was raised by public subscription, and this fact formed an incentive for all of those engaged in the erection of the structure to carry out each detail with the utmost care and regard for artistic effect. As a monument of modern architecture it is admirably related to its Californian environment, and it will always stand as an expression, a milepost on the road, of community dramatic achievement.

Entrance Court Community Playhouse, Pasadena
Elmer Grey, Architect

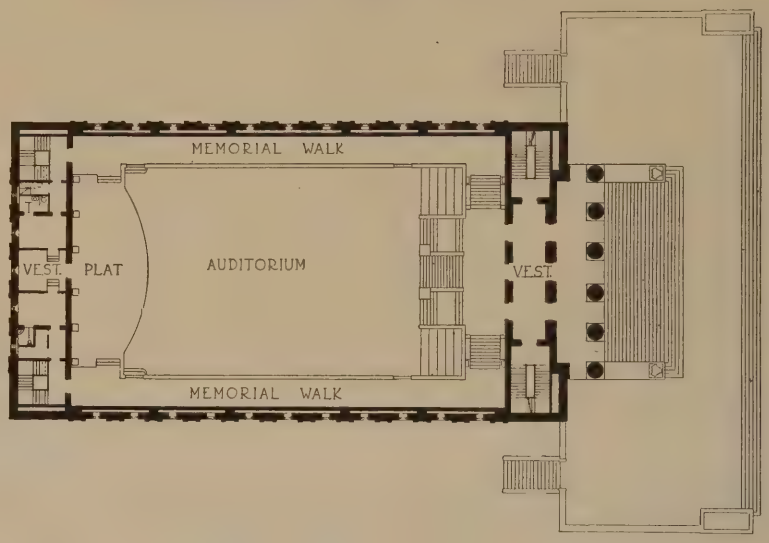
Photos. Tebbs & Knell, Inc.

Plans on Back

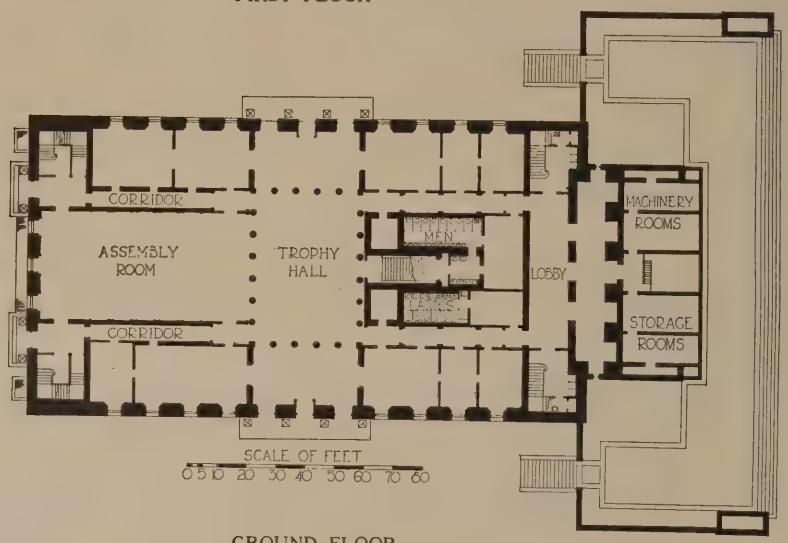
MARYLAND WAR MEMORIAL, BALTIMORE

LAWRENCE HALL FOWLER, ARCHITECT

SECOND FLOOR



FIRST FLOOR



GROUND FLOOR

MARYLAND WAR MEMORIAL, BALTIMORE

LAWRENCE HALL FOWLER, ARCHITECT

ENTRANCE COLONNADE

TROPHY HALL

MARYLAND WAR MEMORIAL, BALTIMORE
LAWRENCE HALL FOWLER, ARCHITECT

Photo. Tebbs & Knell, Inc.

MEMORIAL HALL, TOWARD PLATFORM

Photo. Drix Duryea

VIEW OF A SIDE ELEVATION

MARYLAND WAR MEMORIAL, BALTIMORE

LAWRENCE HALL FOWLER, ARCHITECT

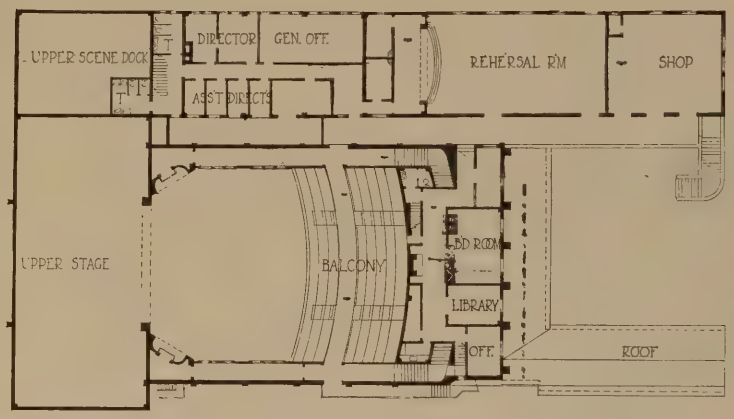
Photos. Margaret Craig

Plans on Back

ENTRANCE PATIO

COMMUNITY PLAYHOUSE, PASADENA

ELMER GREY, ARCHITECT



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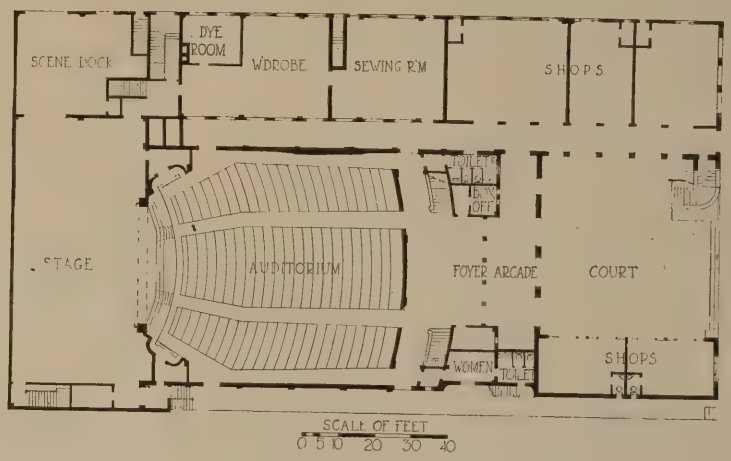


FIRST FLOOR

COMMUNITY PLAYHOUSE, PASADENA

ELMER GREY, ARCHITECT

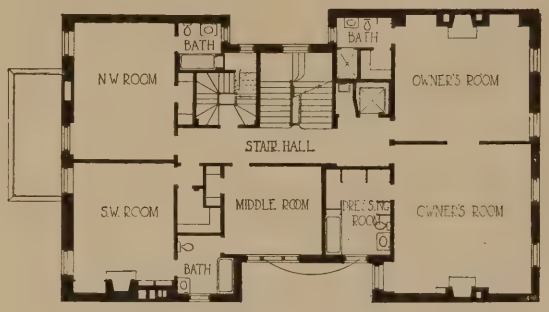
AUDITORIUM
COMMUNITY PLAYHOUSE, PASADENA
ELMER GREY, ARCHITECT

Photos. Trowbridge

Plans on Back

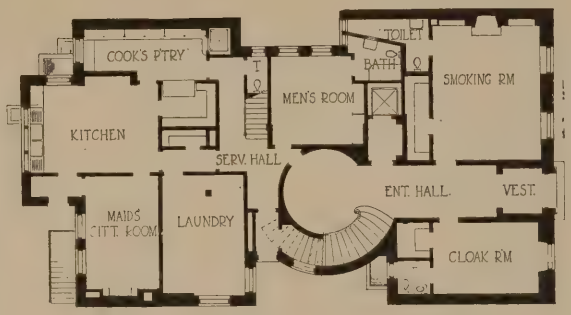
HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT



THIRD FLOOR

FOURTH FLOOR



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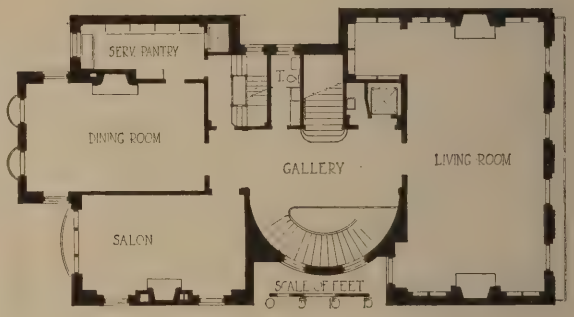


SECOND FLOOR

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT

LIVING ROOM

DETAIL, DOOR INTO HALL

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT

TWO VIEWS OF DINING ROOM

HOUSE OF JOHN P. WILSON, ESQ., CHICAGO

HOWARD VAN DOREN SHAW, ARCHITECT

House of John P. Wilson, Esq., Chicago

HOWARD VAN DOREN SHAW, Architect

WITH the increasing popularity of large and palatial apartments for city homes, the number of private city houses built each year has dwindled rapidly. In fact an outstanding example of new urban domestic architecture is today so rare that it is a pleasure as well as a privilege to publish so fine an example of modern Georgian architecture as this house recently completed in Chicago.

The simple four-story facade shows a dignified treatment carried out in brick and limestone. The basement story with its hospitable entrance door and well proportioned windows is built of limestone, above which the three remaining stories are constructed of dull red brick. Arches with limestone key blocks provide slight recesses for the tall windows of the main floor. A narrow limestone cornice with modillions breaks the facade above the second story windows, giving the effect of a high parapet or attic to the wall of the fourth floor above. A plain limestone coping finishes the top of the facade. A thin limestone balcony supported on delicate corbels separates the limestone walls of the basement from the brick walls above. A simple wrought iron balustrade further accentuates and ornaments this division between the basement and the upper stories, and a high wrought iron fence at the sidewalk level furnishes another decorative note emphasizing the character of the building.

The plan of Mr. Wilson's house is clearly indicated by the arrangement of windows on the front facade. Entering the front door, a small cloakroom is located at the left, while on the right is a larger room used as a study or office. The entrance hall leads to the center of the house, where a graceful circular stairway with an interesting wrought iron balustrade leads to the main floor. The walls of this entrance hall are laid up in Yorkshire stone, with a black marble base which harmonizes well with the black terrazzo floor. The stairway also is constructed of warm toned Yorkshire stone. In the rear of the basement floor are located the kitchen, servants' dining room, laundry, pantry and storage rooms, which are reached from the street through a narrow passageway. The plan of the first or main floor shows a large living room, extending the entire length of the front of the house. This room, which is of unusually fine proportions, is paneled from floor to ceiling, with an elaborately carved cornice and panel mouldings in typical Georgian style. Furnished almost entirely with rare pieces of antique English furniture of design appropriate to the period of the room, a remarkable air of age and dignity is obtained. A pair of antique crystal chandeliers, interesting old paintings, wall sconces and quaint original bookcases still further add to the Georgian atmosphere of this delightful room. The paneled walls are painted a soft shade of brown and are glazed to produce an antique tone. The carved panel mouldings and cornice are gilded and glazed to further enhance the rich color tones of walls and ceiling. The walnut doors into the center stair hall, the walnut bookcases and the brown toned

Stairway and Entrance Hall

The Yellow and White Salon

mahogany of the furniture make a pleasant contrast to the lighter tones of the walls. The massive bolection moulding of the fireplace is of dull red marble, which color is repeated in some of the lamps and shades, as well as in the antique Chinese rugs. Chinese red appears again in the raw silk hangings of the windows, making a delightful contrast to the brown and old gold tones prevailing throughout the entire room. The furniture coverings vary in color, Chinese green, Empire blue, taupe, and the various colors of old needlework are used. Several of the old pieces of furniture are Chinese Chippendale, while the rest are in varying styles of the Georgian period—Hepplewhite, Sheraton and Adam.

This great living room is entered from a spacious center stair hall with black and white marble floor, walls, pilasters and cornice painted a warm gray, and window hangings of rich green, which provides an attractive approach to the open archway, through which a broad stairway leads to the floors above. Service stairs, store closets and a lavatory are also located adjacent to this center stair hall. At the rear of this floor are a dining room and salon of nearly equal sizes. Both rooms are decorated in a simple adaptation of the Adam style. In the dining room an antique marble mantelpiece and old armchairs, all in the Empire style, are combined successfully with Adam pieces. Various tones of green are used for the color scheme. Against the gray-green walls, which are broken into panels in an interesting manner, hangings are used in which an Empire design in rich yellow appears against a ground of green. The dining room projects a few feet beyond the salon, making it possible to have a window in each side wall as well as at the end of the room. In the salon the walls are painted white in characteristic Adam fashion, against which the vari-colored marble mantelpiece in this same style makes a pleasant contrast. On the dark stained floor a richly colored rug, showing blue and rose against a yellow background, furnishes a delightful color note. Color again relieves the whiteness of the walls in the green and gold painted cabinets set into the deep niches which are recessed within the walls on either side of the fireplace.

The second floor of this unusually well planned and delightfully decorated house is taken up by a suite of two bedrooms and dressing room on the front, and two guest rooms with baths on the rear. On the third floor are additional family bedrooms with baths connecting, in the front, and at the rear, completely shut off from the front of the house, are located six servants' rooms and two baths. To sum up the impression made by a brief survey of this successful example of a modern American city house, designed, decorated and furnished with consummate taste and skill in the finest manner of the Georgian period, it can justly be said that it is one of the most perfect of recent American homes.

The White Walls of the Salon Are Relieved by the Rich Yellow Rug and Hangings

THE BUILDING SITUATION

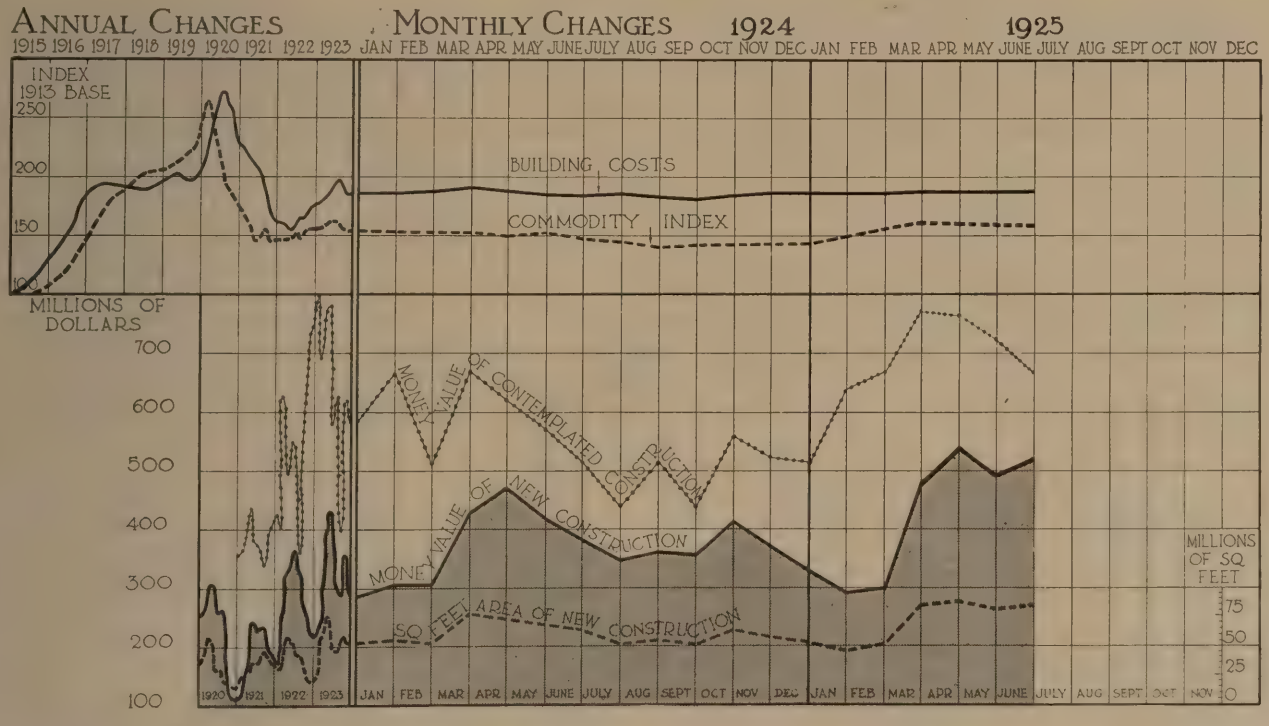
A MONTHLY REVIEW OF COSTS AND CONDITIONS

THE building construction figures for the month of June, as reported by the F. W. Dodge Corporation, indicate an enormous total, approximately 40 per cent higher than for the corresponding month of last year. The contracts awarded during June in territory covering about seven-eighths of the United States total $540,609,600, which is an increase of 9 per cent over May. For the first six months of 1925 the total value of building contracts let is over $2,500,000,000, representing nearly 15 per cent more than during the first six months of the record year 1924. The building industry is today on a more stable basis than it has been for many years.

According to a recent survey issued by the Guaranty Trust Company of New York, some light is thrown on the question of comparative costs by a consideration of the area and value represented by contracts awarded. The average value per square foot of floor space during the first five months of this year and the corresponding period last year, for the different classes of buildings, is thus given:

Classification	1925	1924
Commercial	$5.39	$5.17
Educational	6.51	5.77
Hospitals and Institutions	7.92	6.83
Industrial	6.91	6.78
Military and Naval	5.78	6.60
Public Buildings	7.65	6.85
Religious and Memorial	8.63	7.44
Residential	4.87	4.58
Social and Recreational	8.22	5.62
Average	$5.47	$5.06

It will be noted that the average cost per unit of area is materially higher this year in every group except military and naval buildings, which form only a very small proportion of the total. The average increase in unit cost is about 8 per cent. This increase does not by any means measure the advance in average building costs during the year, but it does provide some basis for the contention that an advance rather than a decline has taken place.



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs.* This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index.* Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction.* Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record.* (4) *Money Value of New Construction.* Total valuation of all contracts actually let. The dollar scale is at the left of the chart in millions. (5) *Square Foot Area of New Construction.* The measured volume of new buildings. The square foot measure is at the right of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

Settings For Hand Fired Tubular Boilers

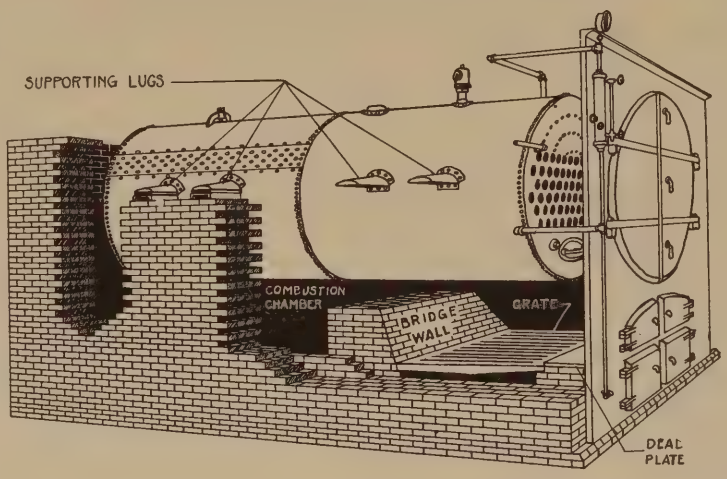


Fig. 12—Lug Support for Horizontal Tubular Boiler

THE boiler illustrated at the left is supported by lugs riveted to the shell and resting on brick side walls. Boilers of up to 54 inches in diameter may be supported by two lugs on each side. From 54 to 78 inches they must be supported by the outside suspension type of setting, or at four points by brackets set in pairs.

Fig. 13 shows the method of providing for expansion and contraction in lug-supported horizontal-tubular boilers by anchoring the front lugs in place and resting rear lugs on rolls which permit the free movement of the boiler.

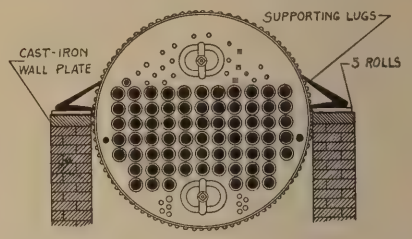


Fig. 13—Expansion Rolls Under Lug Supports

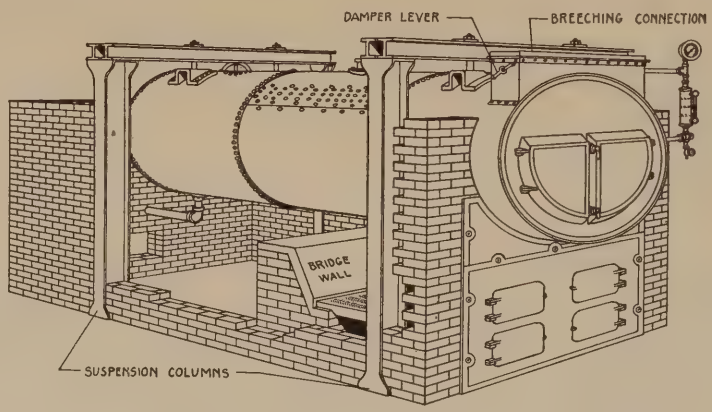


Fig. 14—Suspension Support for Return Tubular Boiler

The suspension type of setting for return-tubular boilers (Fig. 14) is the best type of support, because the boiler is left free to expand and contract.

With either type of support a horizontal-tubular boiler is set 1½ inches higher at the front than at the rear, providing pitch to the blowoff outlet at rear and a rise of flues or tubes from the combustion chamber to the smokebox. The blowoff pipe is protected from direct heat by means of a V-wall, pointing toward the firebox but not touching the boiler.

Supporting columns, as shown in Fig. 15, should be encased in three courses of brick, but with a 2- or 3-inch space all around to allow a flow of cooling air. When two or more boilers are set in battery, an air tunnel is provided from outside setting to interior columns, and sometimes tops are connected with special flues. It is bad practice to connect these vents with the breeching from boilers. Under forced draft, there is danger of heat's being driven into the air spaces.

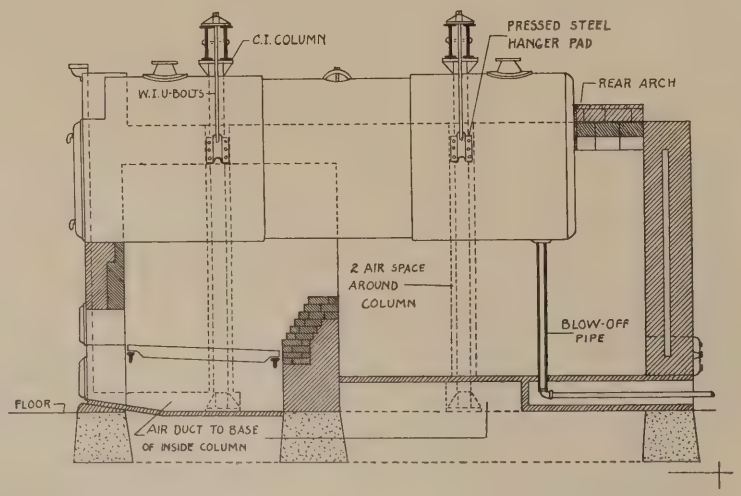


Fig. 15—Vent Ducts Protect Boiler Suspension Columns Against Overheating

The utmost possible precaution must be taken to prevent the columns from buckling when the furnace is stoked with gas, fuel oil or pulverized coal.

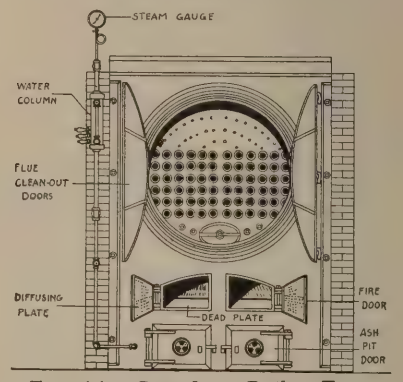


Fig. 16—Cast Iron Boiler Front

This is a typical front for a return-tubular boiler. This iron front has a backing of fire brick.

ENGINEERING DEPARTMENT

Power and Heating Plants

THE GENERATING PLANT; BOILERS

By J. J. COSGROVE

EDITOR'S NOTE—The first part of this series of articles on "Power and Heating Plants" by Mr. Cosgrove, appeared in THE ARCHITECTURAL FORUM for April, 1925.

IT is necessary that a good, substantial foundation be provided to support a boiler and boiler walls. Concrete makes the best foundation, and it is well to have the concrete poured long enough before the delivery of the boiler to allow the foundation to become thoroughly set.

The bearing capacity of the soil must be considered when proportioning the foundation. In soft or swampy ground it might be necessary to drive piles along the line of the walls, or to build a concrete footing a couple of feet thick and over the entire area of the setting. The foundation is made 4 inches wider all around than the brickwork for the boiler setting. A boiler setting for a horizontal tubular boiler is shown in Fig. 17, a sectional view of a boiler setting is shown in Fig. 18, and a half elevation and half cross section in Fig. 19.

Measurements for the various parts of a boiler setting for hand-fired boilers from 36 inches in diameter up to 84 inches in diameter are given in Table II. The reference letters on Figs. 17, 18 and 19 correspond to the letters in the top lines of the table. The height to the bottom of the boiler indicated in Fig. 18, I-J, is for the front end of the boiler. The rear end would be 1½ inches lower. The height of setting given in Table II is the conventional height given by the manufacturers to suit average conditions. As will be seen later, the height of a boiler from the grates depends upon the kind of fuel to be used, and upon the rate of combustion. The walls enclosing a boiler are on an average 12 inches thick, and are made solid. There is no advantage in leaving a space between the outer and inner courses of brick, as it will neither retard heat materially nor prevent the brickwork from cracking. However, hollow setting walls or furnace wall flues are sometimes provided to heat the air used for combustion, and at the same time keep down the temperature of the walls.

At the rear of the boiler setting is the rear arch, which roofs the space between the back end of the boiler and the brickwork and deflects the flames and hot gases into the boiler tubes. The under side of this arch is just above the top level of the uppermost row of tubes. The back arch of the boiler should be just high enough to clear the top row of tubes. It must be built low enough so that the water level inside the boiler can never fall below that of the arch, which if placed too high will leave a section of tube sheet bare when the water happens to be low in the boiler. The arch must not touch the boiler or the boiler cannot expand without pushing the arch out of true. A lap joint is made to cover the opening to cut down the air leakage. At the sides, just above the middle line of the boiler, the brickwork is corbeled out as shown at A, to close the gap between wall and boiler. From above

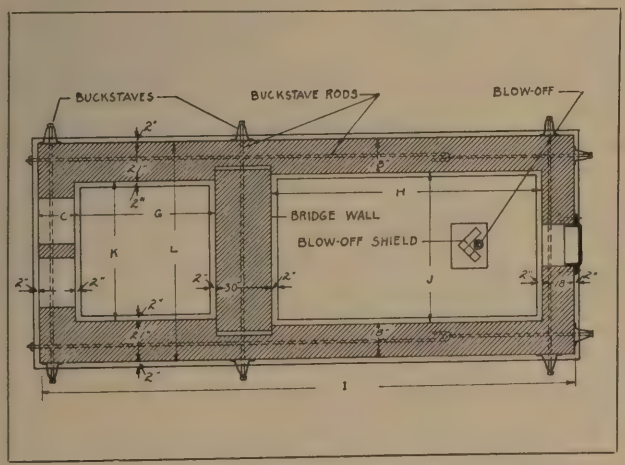


Fig. 17—Plan of Setting for Horizontal Tubular Boiler

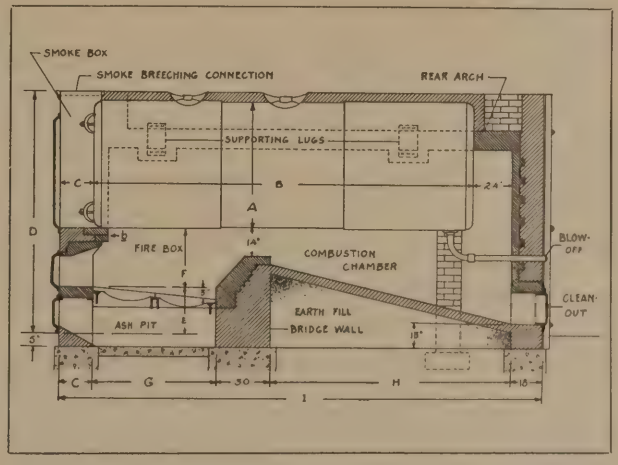


Fig. 18—Longitudinal Section Through Setting for Horizontal Tubular Boiler

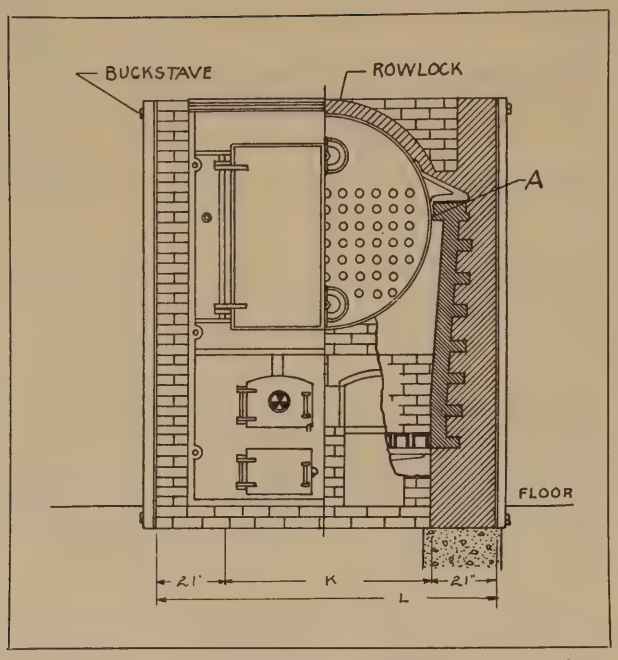


Fig. 19—Half Elevation and Half Cross Section of Typical Boiler Setting

this a single or double rowlock arch is sprung to enclose the boiler at the top, and to prevent leakage of air into the boiler setting or the escape of flames and gas from within. To more effectively insulate the top of the boiler and prevent air or gas leaks, plaster the arch with asbestos cement.

The bridge wall, which partly separates the furnace from the combustion chamber, is built of fire brick and is not bonded to the side walls. It is let into grooves or pockets in the side walls for support, but with sufficient room for the bridge wall to expand without crushing out the side walls or cracking the brickwork. The bridge wall is made independent of the side walls, so it can be torn out and renewed at any time without tearing out part of the side walls. The bridge wall has many functions to perform in the operation of a boiler. It limits the furnace, provides a rest for the grates, and by deflecting the flames, hot gases and air upward it helps to mix and commingle them more thoroughly when passing through the throat or space between the top of the wall and the boiler.

All the walls inside the boiler setting, the bridge wall, inside lining of furnace, combustion chamber and smokebox, are built of fire brick. The firebox lining of fire brick is made 9 inches thick, or two rows of brick, for from 18 to 24 inches above the grates. These brick are laid in stretcher courses with headers every fifth course, so that one row or 4½ inches of brickwork can be removed when burned out, and there will still be a fire brick backing. New brick can easily be laid up against the inner or second course of fire brick. At the rear of the boiler a V-shaped pier of fire brick is built with the point of the V toward the front. Back of this pier, and protected by it from the direct blast effect of the flames and gases, is the blowoff pipe.

The front brickwork of the boiler setting is pierced with so many openings that the masonry becomes a series of arches and inverted arches. Cast iron door linings, similar to those suggested in Fig. 20, are put in the ashpit openings and built in with brick. At the height called for in the setting, a dead plate (Fig. 21) is laid across the front wall. This plate has a lip to support the front end of the grate bars. A cast iron lining for the fire doors comes next, over which is sprung an arch of fire brick. Above this arch the wall is corbeled in, as shown at B in Fig. 18, so it will project several inches along the shell of the boiler. An inverted arch is then built, as shown in Fig. 22, and an arch sprung on top of that, thus making a complete circle which forms a smokebox at the front end of the boiler and separates the smokebox from the furnace or firebox. An opening is left at the top of the arch or circle, and this is covered with a stack plate similar to that in Fig. 23, to support the breeching. Inspection will show two grooves, one at each end of the collar upstanding on the stack plate. They are to receive the damper rod, the damper being located at this point in the breeching. Before starting the brickwork, the water column and blowoff pipes are made up in place. An air space is left around those pipes where they pass through the brickwork; then, when the mason work is completed, the air spaces are tightly packed with asbestos, and then pointed with mortar to prevent air leaks. The water column is set so that the lowest gauge cock is 3 inches above the top row of tubes at the front end.

Firebrick. There is no doubt that as many setting failures result from poor workmanship as from use of poor materials. It is advisable, therefore, in setting boilers to have it done by masons who have specialized on that class of work. There are two kinds of brick used in boiler settings,—ordinary hard-burned red brick, and fire brick. The red brick are laid up in lime-cement mortar composed of one volume of Portland cement, three volumes of unslacked lime and 16 volumes of clean, sharp sand. Not less than 2½ bushels of lime are used in laying up 1,000 brick. Each brick is thoroughly embedded, and all joints are filled with mortar to completely fill all crevices through which air might

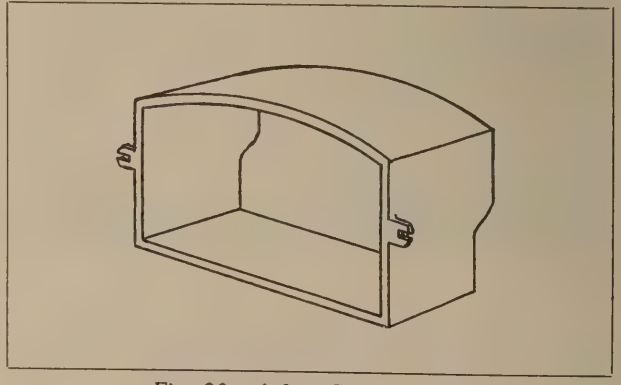


Fig. 20—Ashpit Door Lining

TABLE II

DIMENSIONS AND BRICK FOR HORIZONTAL TUBULAR BOILER SYSTEMS

HORSE POWER	15	20	25	30	35	40	45	50	60	70	75
A—Diameter of Boiler	36	36	36	44	44	44	48	48	54	54	60
B—Length of Boiler	8	10	12	10	12	14	12	14	14	16	14
C—Front Wall	13	13	13	17	17	17	17	17	18	18	18
D—Floor to Stack Plate	7′ 2½″	7′ 2½″	7′ 2½″	8′ 2¾″	8′ 2¾″	8′ 2¾″	8′ 11½″	8′ 11½″	9′ 9¾″	9′ 9¾″	10′ 2″
E—Floor to Dead Plate	24	24	24	24	24	24	24	24	24	24	24
F—Grates to Boiler	28	28	28	28	28	28	28	28	36	36	36
G—Length of Ashpit	36	36	42	42	42	48	48	48	48	54	54
H—Combustion Chamber	4′ 6″	6′ 6″	8′ 0″	6′ 0″	8′ 0″	9′ 6″	7′ 6″	9′ 6″	9′ 6″	11′ 6″	9′ 0″
I—Length Over All	12′ 7″	14′ 7″	16′ 7″	14′ 11″	16′ 11″	18′ 11″	16′ 11″	18′ 11″	19′ 0	21′ 0″	19′ 0″
J—Width Comb. Chamber	42	42	42	50	50	50	54	54	60	60	66
K—Width of Furnace	36	36	36	44	44	44	48	48	54	54	60
L—Width Over All	6′ 6″	6′ 6″	6′ 6″	7′ 2″	7′ 2″	7′ 2″	7′ 6″	7′ 6″	8′ 0″	8′ 0″	8′ 6″
No. of Fire Brick, Single	725	800	960	1000	1100	1200	1284	1500	1800	2080	1940
No. of Red Brick, Single	6000	6800	7600	7300	8760	10200	9300	10800	11200	12800	12200
No. of Fire Brick for Battery	1450	1600	1920	2000	2200	2400	2568	3000	3600	4160	3880
No. of Red Brick for Battery	8200	11500	12800	12100	14680	17200	15375	18000	18400	21200	20400

HORSE POWER	80	90	100	115	125	150	175	175	200	200	225
A—Diameter of Boiler	60	60	66	66	72	72	72	78	78	84	84
B—Length of Boiler	16	18	16	18	16	18	20	18	20	18	20
C—Front Wall	18	18	18	18	18	18	18	18	18	18	18
D—Floor to Stack Plate	10′ 2″	10′ 2″	10′ 8″	10′ 8″	11′ 2″	11′ 2″	11′ 2″	11′ 7″	11′ 7″	12′ 1″	12′ 1″
E—Floor to Dead Plate	24	24	24	24	24	24	24	24	24	24	24
F—Grates to Boiler	36	36	36	36	36	36	36	36	36	36	36
G—Length of Ashpit	54	60	60	66	66	72	78	72	78	72	78
H—Combustion Chamber	11′ 0″	12′ 6″	10′ 6″	12′ 0″	10′ 0″	11′ 6″	13′ 0″	11′ 6″	13′ 0″	11′ 6″	13′ 0″
I—Length Over All	21′ 0″	23′ 0″	21′ 0″	23′ 0″	21′ 0″	23′ 0″	25′ 0″	23′ 0″	25′ 0″	23′ 0″	25′ 0″
J—Width Comb. Chamber	66	66	72	72	78	78	78	84	84	90	90
K—Width of Furnace	60	60	66	66	72	72	72	78	78	84	84
L—Width Over All	8′ 6″	8′ 6″	9′ 0″	9′ 0″	9′ 6″	9′ 6″	9′ 6″	10′ 0″	10′ 0″	10′ 6″	10′ 6″
No. of Fire Brick, Single	2230	2435	2350	2540	2650	2980	3300	3020	3360	3400	3780
No. of Red Brick, Single	13000	14400	13800	15000	14800	15600	16700	16400	18500	18000	20000
No. of Fire Brick for Battery	4460	4870	4700	5080	5300	5960	6600	6040	6720	6800	7560
No. of Red Brick for Battery	21600	23970	22700	24687	24700	25900	27600	27235	30950	30200	33700

penetrate. Where red brick and fire brick are used in the same wall, they are carried up together and bonded at every sixth course, excepting in the furnace, as was previously pointed out, where every fifth course is a header course. Under no consideration is fire clay to be mixed with the cement mortar for laying red brick.

Fire brick are not laid in mortar; they are laid in fire clay, and the fire clay is not buttered on to bed the brick in, as is the case with mortar and common brick. Fire brick must be dry and protected from moisture until used. The fire clay for laying fire brick is mixed to the consistency of a batter. Each brick is dipped into this thin fire clay wash or slip on the one side and the two edges which will give contact with the others in the wall; it is then rubbed and shoved into place and tapped with a wooden mallet until it touches the brick next

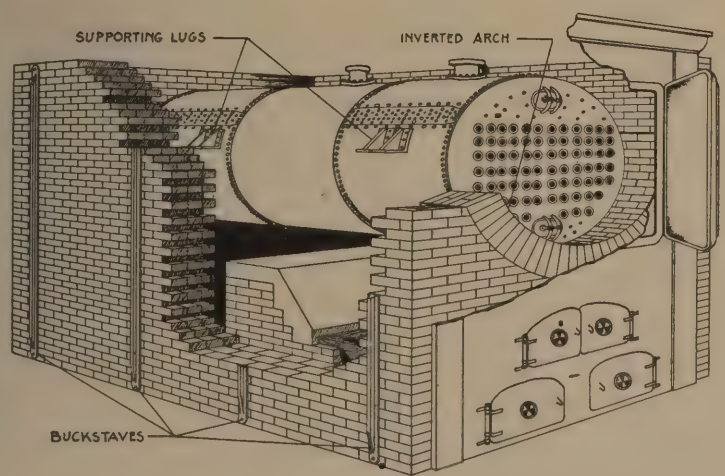


Fig. 22—Inverted Arch at Boiler Front

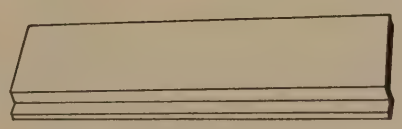


Fig. 21—Dead Plate

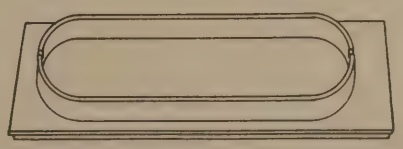


Fig. 23—Stock Plate for Breeching Support

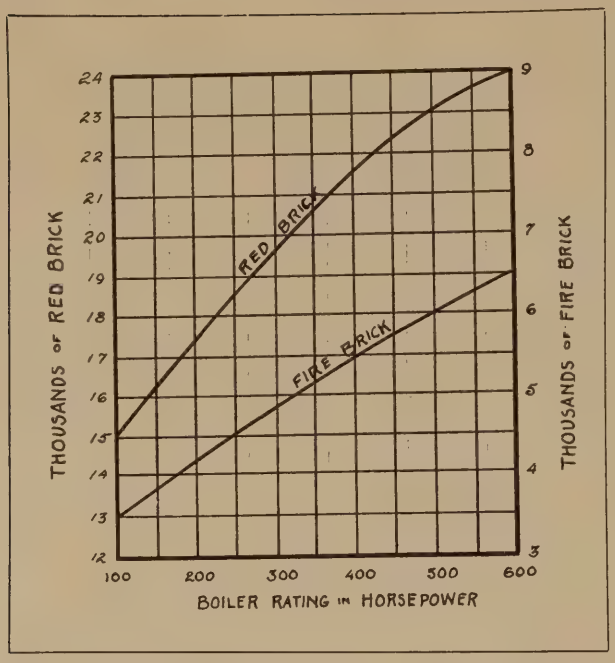


Fig. 24—Brick Required for Water Tube Boiler Settings

below it. Fire clay is not a cement, and it has little or no holding power. Its action is that of a filler rather than a binder, and it is too thick to use when it can be handled with a trowel. It is well to use with fire brick a fire clay furnished by the manufacturer of the brick, having the same qualities.

All parts of a boiler setting in contact with flames or hot gases must be faced with or built of fire brick or some equally refractory material, capable of withstanding the high temperatures they will be subjected to. The brickwork of the ashpit in hand-fired boilers may be of red brick, but in stoker-fired boilers the ashpit lining must be of fire brick.

Furnace temperatures in power boilers will range from 2,800 to 3,200° Fahr., and many refractory materials used for furnace linings melt under or at those temperatures. However, in practice, a fire brick is never heated to the temperature of the furnace. That is, the temperature of the brick mass as a whole is far below the furnace temperature, and only about 10 per cent of its cross section nearest the fire even approaches the furnace temperature. According to the United States Bureau of Standards, the melting points of fire bricks are thus: The most common fire brick, or those made of clay, of which the main ingredient is kaolin, will melt at a temperature ranging from 2,831 to 3,137° Fahr.; bauxite brick, at from 2,949 to 3,245°; silica brick, at from 3,092 to 3,101°; chromite brick, at 3,722°, and magnesia brick at 4,929°.

While fire brick or bauxite, silica, chrome magnesia or dolomite have melting points higher than fireclay, they have not proved satisfactory in boiler practice. They do not withstand sudden heating, cooling, pressure and action of the gases and ash. Under sudden changes of temperature they spall and break off in large pieces. The best fire brick for boiler settings are made of fire clay, and the best fire brick are made from the fire clays of Pennsylvania; south and west of Pennsylvania the fire clay becomes poorer as the distance increases, some of the southern fire clays containing a considerable percentage of iron oxide, which is objectionable.

The plasticity of fire brick is more important than the melting temperature from a boiler-setting standpoint. Plasticity means the tendency of a fire brick to become plastic and flow at a temperature lower than the melting point, so it will become deformed under a given load. Under a unit stress of 100 pounds per square inch, the plastic point must be 2,400° Fahr. or higher to be used at all, and 2,800° Fahr. to give satisfactory service. In mechanically-stoked furnaces, the lining can be made stronger or more durable by using special blocks instead of the standard fire brick. The approximate number of red brick, also of fire brick, required for a Heine standard water-tube boiler can be determined by means of the chart, Fig. 24.

If fire clay is not of the best quality it will melt and run long before the brick softens. Common sand, salt and lime hasten fusion and cement the brick throughout, but at high temperatures this fusion destroys the brick prematurely. The addition of only 5 per cent of Portland Cement, asbestos or salt will lower the fusion point of the clay almost 400° Fahr. Fire sand, which is a finely ground calcined fire clay, or powdered fire brick, can be added to the mortar. This fire sand, having already been fired, has reached its full shrinkage, and helps to hold the brick arch in place, even when the plastic fire clay shrinks, thereby tending to loosen the brick. There are several commercial cements which withstand temperatures at as high as 3,100° Fahr. which are suitable for use with high grade fire brick, such as are used in this work.

Putting the Boiler in Service. When the setting is completed, the boiler is filled with water and the manhole at the top of the boiler left open. A strong solution of soda ash (50 to 60 pounds for a 150-horse-power boiler) is added to the water to cut the oil and grease. If the boiler is to stand idle for some time, the water is drained out, and the lower and upper manholes are left open, so there will be a circulation of air through the inside. If that is not done the boiler will sweat and corrode, and be in worse condition than if it had been operated continuously.

The best way to dry out a boiler setting is to block open the boiler damper and the ashpit doors as soon as the brickwork is completed, and in this way maintain a free circulation of air through the setting. If possible this preliminary drying should be continued for several days before any fire is placed in the furnace. When ready for the drying-out fire, a light fire is started with wood, and gradually built up as the walls become warm. After the walls have become thoroughly heated, coal is fired, and the boiler is then put into active service.

FRONT ELEVATION

Plans on Back

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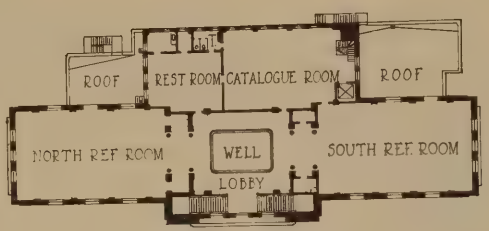

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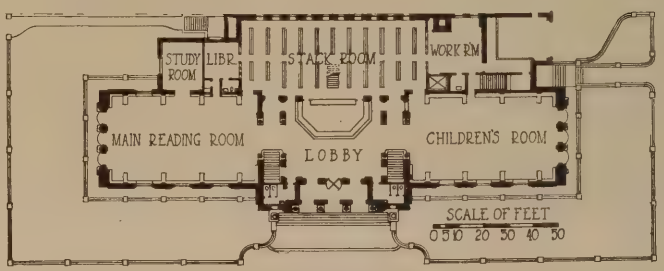
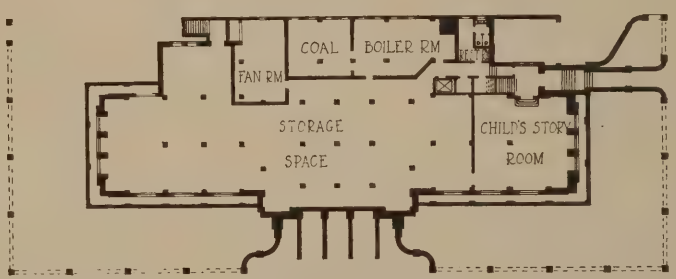


MAIN FLOOR



BASEMENT

PLANS, BUILDING FOR BRANCH OF THE CHICAGO PUBLIC LIBRARY

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DETAIL, END ELEVATION

MAIN ENTRANCE

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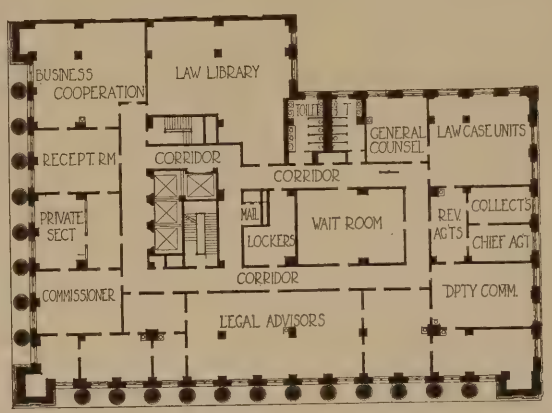
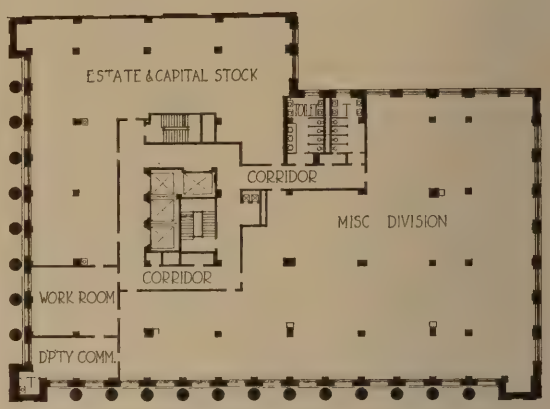


SECOND FLOOR



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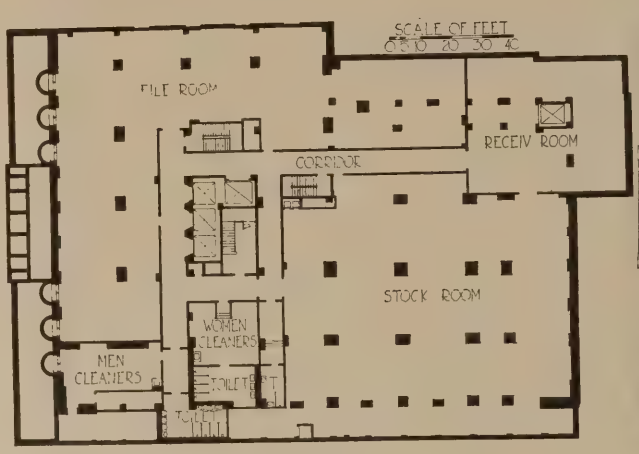
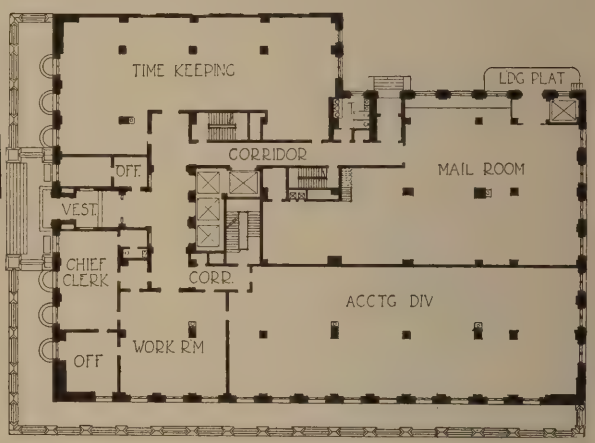


BASEMENT

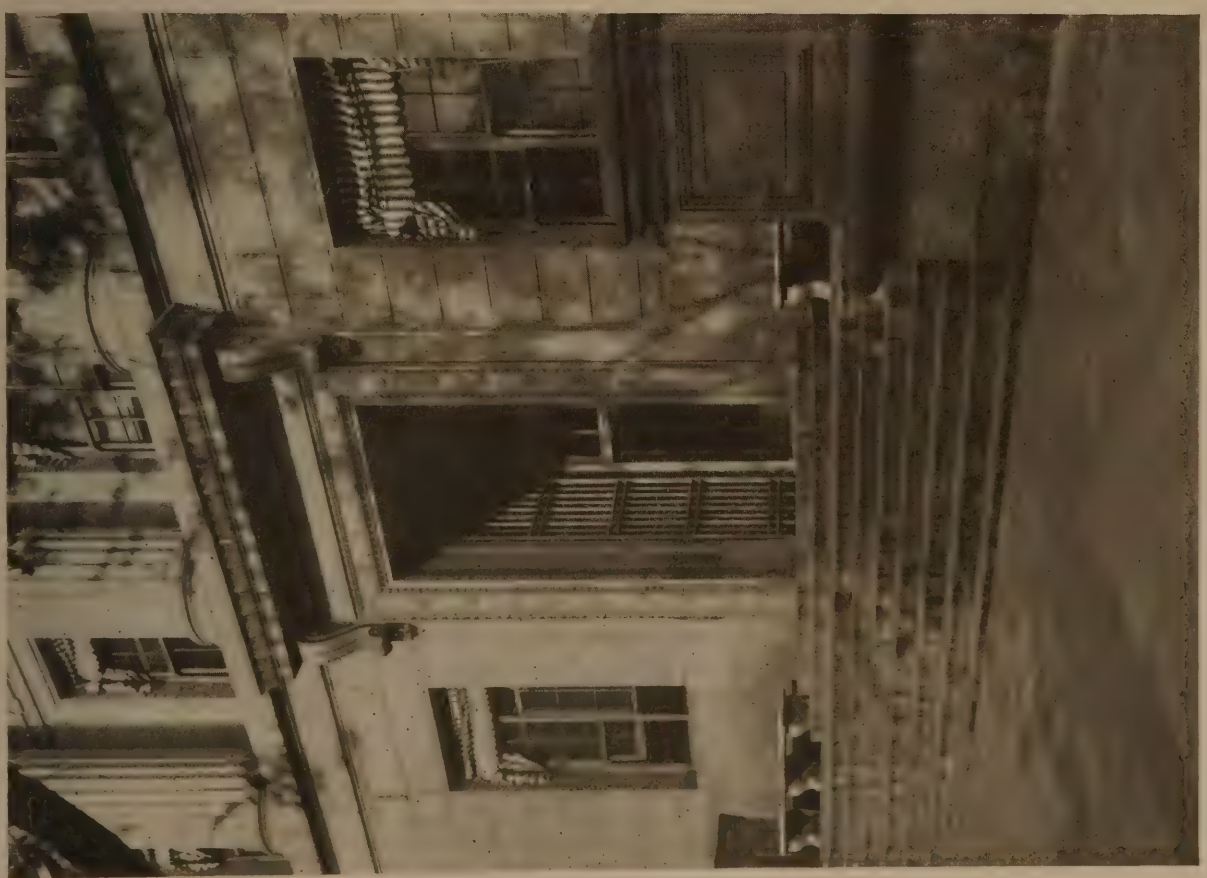


FIRST FLOOR

PLANS, UNITED STATES TREASURY ANNEX, WASHINGTON

CASS GILBERT, ARCHITECT

DETAIL, SIDE ELEVATION



MAIN ENTRANCE ON MADISON PLACE

UNITED STATES TREASURY ANNEX, WASHINGTON

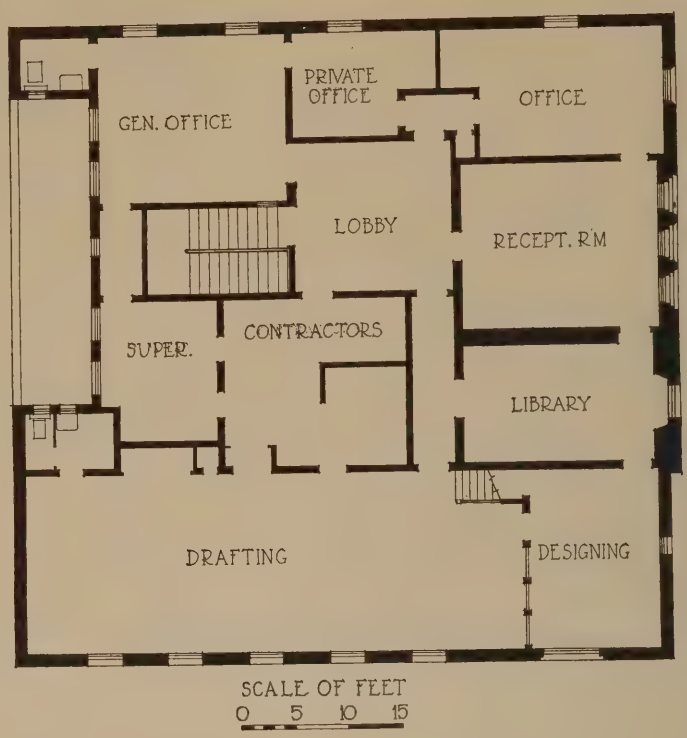
CASS GILBERT, ARCHITECT

Photos. Bryan-Brandenburg Co.

Plan on Back

THE G. L. MORRIS BUILDING, PASADENA

MARSTON, VAN PELT & MAYBURY, ARCHITECTS



PLAN, OFFICES OF MARSTON, VAN PELT & MAYBURY, ARCHITECTS

IN THE G. L. MORRIS BUILDING, PASADENA, DESIGNED BY THEM

Editor's Note. Through an unfortunate oversight there was omitted from THE ARCHITECTURAL FORUM for June any mention of the fact that this charming small office building in Pasadena, designed by Marston, Van Pelt & Maybury, served as the inspiration for the color sketch of an ideal small motion picture theater, drawn by Howard Moïse and used as the cover design.

Photo. John Wallace Gillies

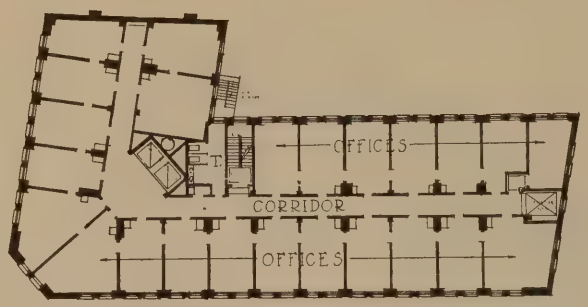
MEMORIAL TO THE FIRST DIVISION, WASHINGTON
CASS GILBERT, ARCHITECT

Photo. W. S. Keith

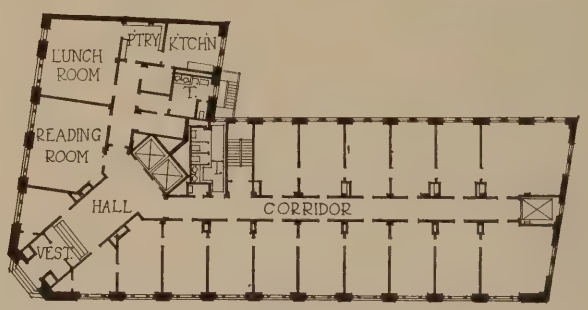
Plans on Back

MEDICAL ARTS BUILDING, MONTREAL

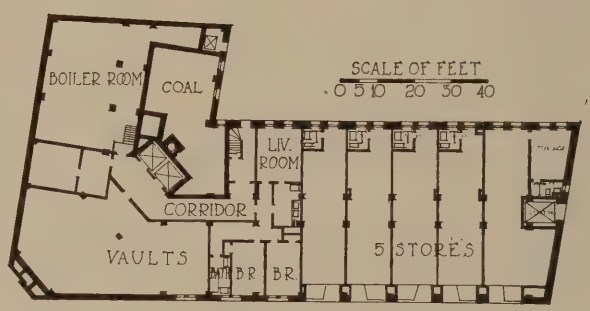
ROSS & MACDONALD, ARCHITECTS



A TYPICAL FLOOR



FIRST FLOOR



BASEMENT FLOOR

PLANS, MEDICAL ARTS BUILDING, MONTREAL

ROSS & MACDONALD, ARCHITECTS

Warbrook, Eversley, Hampshire

By HAROLD DONALDSON EBERLEIN

WARBROOK, at Eversley in Hampshire, claims our interest and attention on four counts. First of all, its own intrinsic beauty commends it to our favorable regard, and its fidelity as an exponent of one particular phase of the English domestic style of the period (a phase none too plentifully represented) renders it worthy of close study. In the second place, it is a choice example of a somewhat unusual thing,—a moderate sized house in the "grand" manner. Next, it is virtually intact, and has not suffered those numerous character-destroying changes and mutilations to which so many of the houses of its day have at some time or other fallen victims. Last, but by no means least, it is the home that an eminent architect of the early eighteenth century built for *himself,* and, therefore, it faithfully embodies his notions of what was fitting in domestic style. It is an index of his taste, peculiarly sincere and trustworthy because there was no element of clients' tastes or prejudices injected into it to injure it.

The epitaph on the tablet in Eversley Church, close by, tells us that John James, eldest son of the Reverend John James, Rector of Stratfield Turgis, "built the house called Warbrook in the parish, anno 1724," and died there in May, 1746, aged 74. "James of Greenwich," in 1705, succeeded Nicholas Hawksmoor as Clerk of the Works at Greenwich Hospital, and his intimate connection with Greenwich continued for 40 years, hence the title by which he is usually known. This post he held under Sir Christopher Wren, Sir John Vanbrugh, Colin Campbell and Thomas Ripley. In 1725 he was called "Surveyor," but as he did not actually hold that office at Greenwich, the mention is to be interpreted as a contemporary acknowledgment of his responsibility and capacity in the discharge of his duties rather than as an exact or precise official definition.

James' first independent work of consequence was undertaken in 1710 when he designed for the Honorable James Johnstone—the "Mr. Secretary Johnstone" at whom Pope aimed his shafts of satire—the house at Twickenham that long afterwards came to be known as "Orleans House," because of its connection with the exiled royal family of France. In the following year, 1711, Jennings, the "master carpenter" at St. Paul's, was removed by the commissioners who appointed James to succeed him at a stipend of £200 a year. The position created for James seems to have been a superintendency of the final work on the cathedral, and the appointment was presumably acceptable to Sir Christopher Wren, whose wishes, however, were often thwarted by the commissioners. At any rate, it was the beginning of a long connection with St. Paul's for, in 1716, James became "Assistant Sur-

West Front of House from the Canal, Warbrook

Marble Mantel in Dining Room

Dining Room Walls, Marbleized in Tones of Rose

Fireplace in the Hall

Side Wall in Hall

Bedroom with Old Chinese Wallpaper

Fireplace End of Drawing Room

Stairway from Upper Hall

Drawing Room Is Painted Greenish Blue

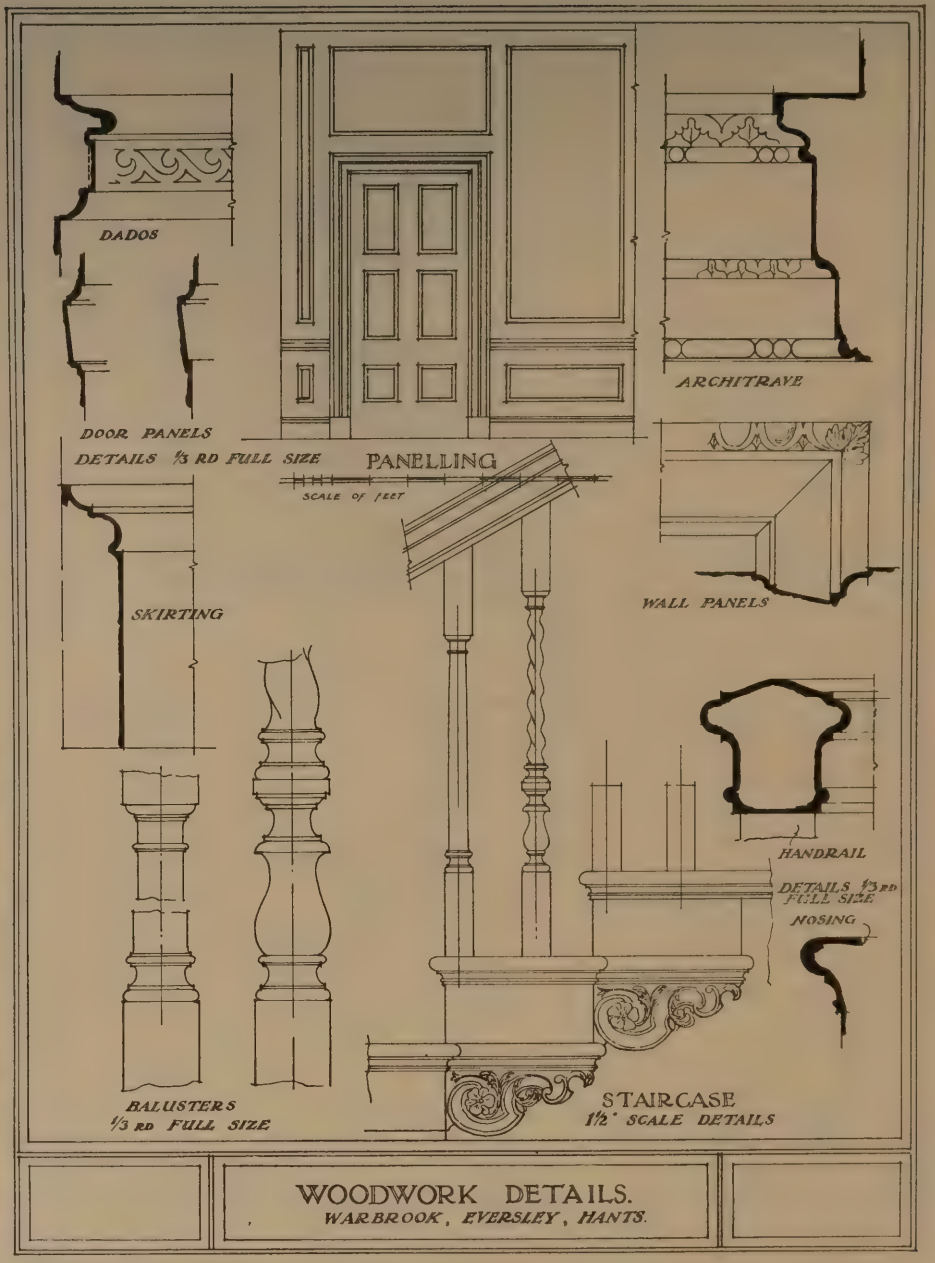
veyor," along with Hawksmoor, and retained the surveyorship of the cathedral till the end of his life.

So far as the exterior of Warbrook is concerned, there is strong individuality resulting from an eclecticism in which it is possible to trace how James combined elements derived both from Dutch usage and from the more highly organized manner of Wren, without altogether overlooking the claims of that precise Palladianism which was then completely filling the architectural horizon. The general aspect of the composition is reminiscent of Batavian precedent, especially the up-springing, high-shouldered part of the central pavilion with its grouping of chimneystacks. Compare the east front with some of the elevations in Vingboon's book, and it will readily be seen how the influence of that once popular publication had left its impress upon the architect's mind. The restraint and calm, reposeful vigor are Wren's, and so likewise are some of the details. The banded architraves and arc-shaped heads of the windows in the wings recall French usage of a somewhat earlier day, while no very searching scrutiny is needed to detect evidence of a more than incipient Palladianism. A certain type of Dutch bluntness is plainly expressed in the four pilasters on each front of the central pavilion, pilasters without capitals, and supporting an entablature devoid of members and mouldings. Pilasters and entablature, in fact, are nothing but broad, flat bands projecting several inches beyond the brick face of the wall. This unusual feature of the design is trenchantly effective in its strong and elemental simplicity, and should find favor among the adherents of one professedly modern school. Incidentally, the treatment exemplified shows that it is not necessary to sacrifice architectural good manners in order to be frank and forceful. From whatever sources John James may have drawn divers items of inspiration, he combined and blended them according to his own original way of thinking, and in so doing he produced a virile, free and independent expression of domestic architecture invested with both urbanity and distinction as well as strong character.

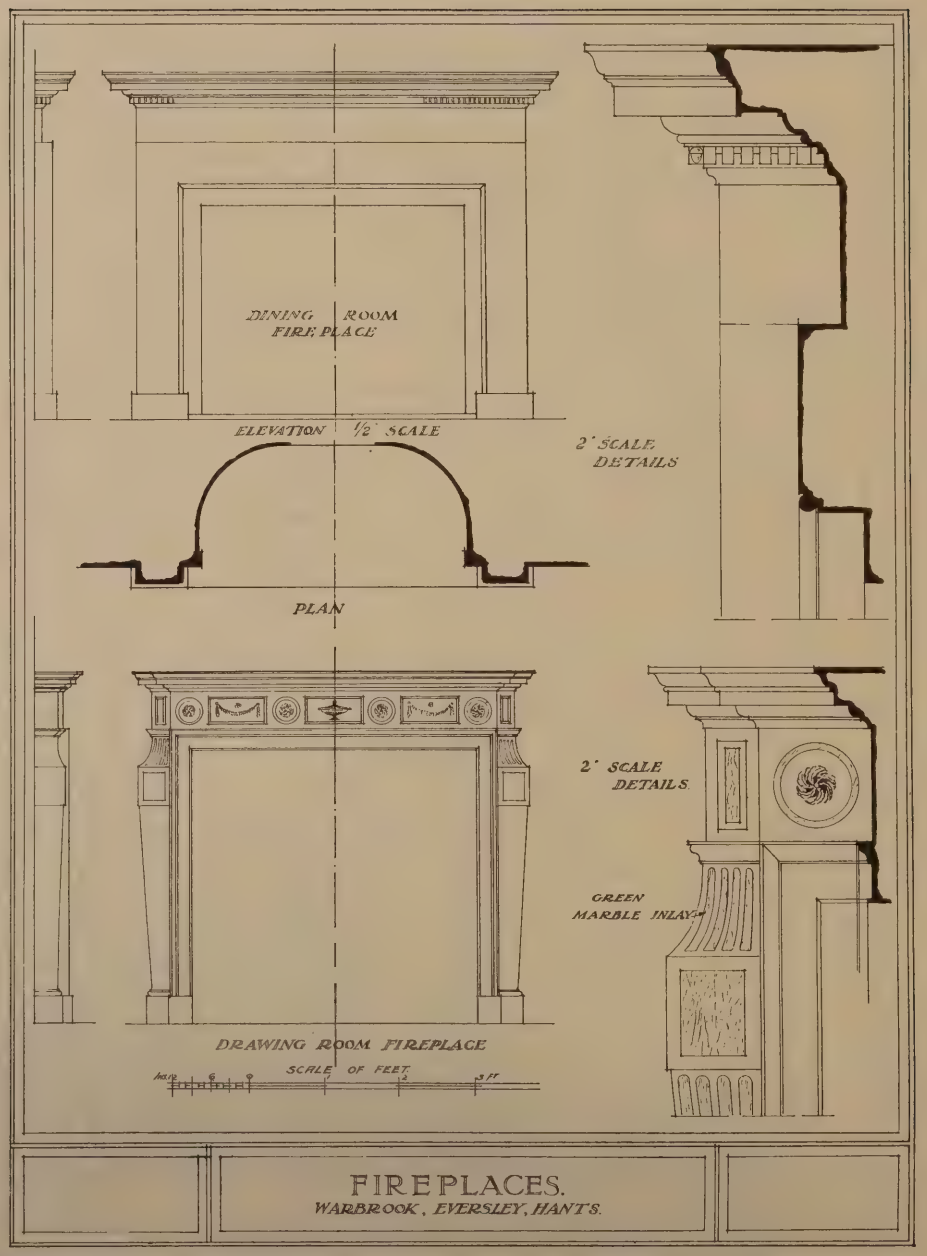
The interior of Warbrook testifies to James' good judgment on the score of decoration. The plasterwork, which is all coeval with the building, is especially noteworthy, particularly that which adorns the walls and ceiling above the staircase. The staircase itself, with its alternating fluted and spiral wooden spindles, the paneling of the walls, and all the other details of the woodwork, deserve careful examination. In the hall and in the dining room the fireplaces likewise are indicative of James' reticent yet robust manner. The grate in the dining room, it should be mentioned, though old, is of later introduction. When the brothers Adam were engaged, long after James' death, to make some decorative changes, they confined their efforts almost entirely to several of the bedrooms, and allowed most of James' work to remain untouched. The Rococo fireplace in the drawing room, the marble fireplace in the garden room, and the Chinese wallpaper in one of the bedrooms of the north wing were additions made when the house was restored for W. B. E. Ranken, Esquire, the present owner.

When Richardson & Gill undertook the restoration of Warbrook the fabric was in an almost derelict condition, and not only was it necessary to carry

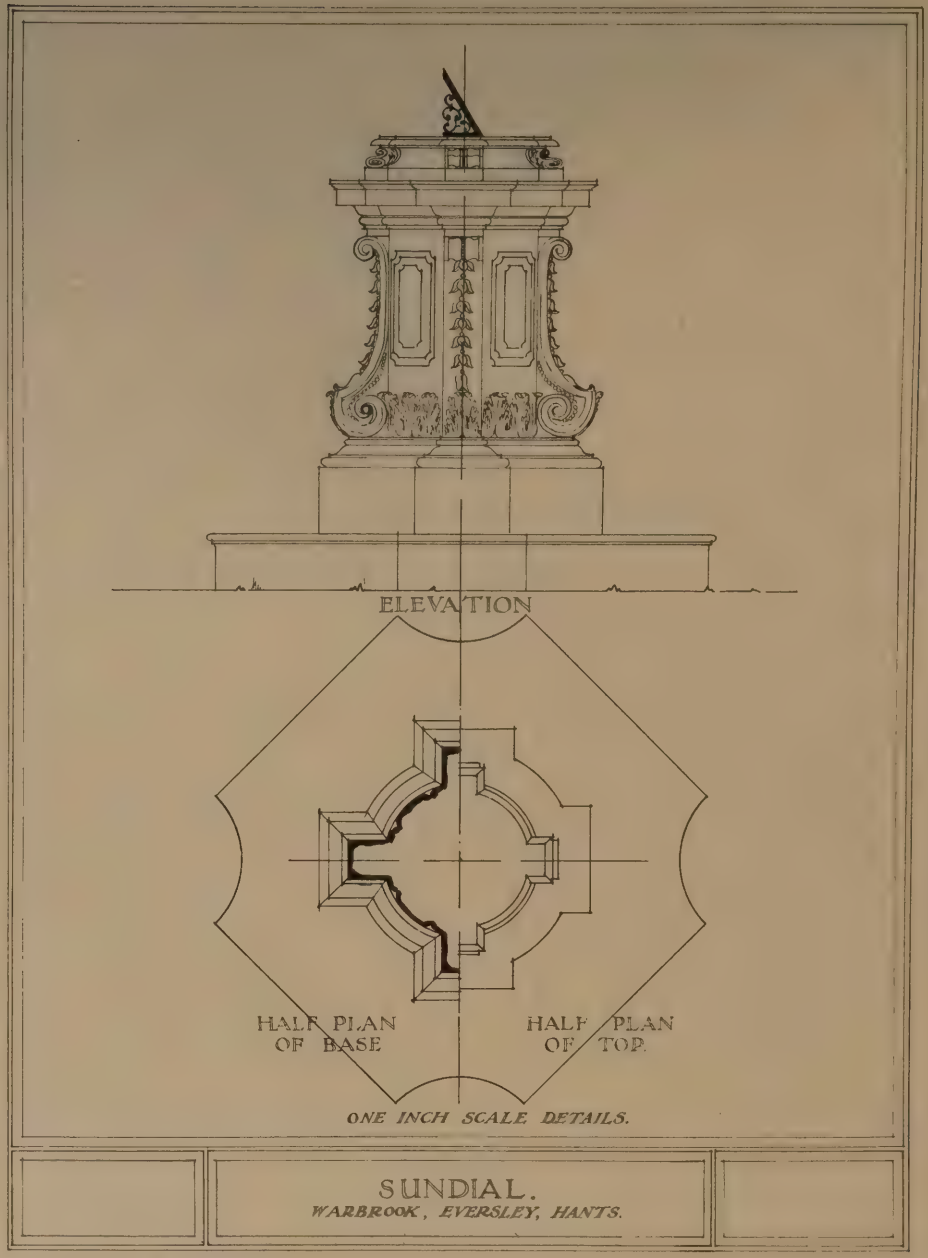
East Front, Warbrook, Eversley, Hampshire



VIEW OF HALL AND DETAILS OF WOODWORK, WARBROOK



TWO FIREPLACES AND THEIR DETAILS, WARBROOK



SUNDIAL AT EAST FRONT OF HOUSE, WARBROOK

out a conscientious replacement of such items as sashing and glazing, which had been ruthlessly altered years before, but extensive repairs were also imperative. Among other things, there had been a good deal of tampering with old floor levels in the south wing, and this involved virtual reconstruction in that quarter. Fortunately, the old stable court with its surrounding buildings had not been interfered with, but elsewhere endless work of an exacting and often minute nature was entailed in order to bring the house and its environment back to their original condition and aspect. The restoration, meticulously performed, was really exemplary *restoration* and not remodeling masquerading as restoration, and Warbrook is now as its designer would have left it. Only one minor building was added.

It is significant that James felt a deep concern in all matters appertaining to garden design, and that he endeavored to put into practice at Warbrook the principles he advocated in print. In substance, he realized what some architects and a great many laymen in America apparently fail to grasp when they seek to discover the peculiarly distinctive element of charm in rural British domestic architecture,—that the garden scheme is an inseparable part of the plan, and that garden and house together form an indivisible composition that cannot be sundered without the gravest consequences. However, this failure of perception is scarcely to be wondered at when one sees the hasty and superficial way the majority of Americans "do" rural England, at high speed without pausing a sufficient space of time to drink in and analyze the essence of that charm they profess so much to admire and consider so important.

Of the old formal garden, to the south of the house at Warbrook, there are no traces left. Its place has been taken by a box-planted, gravel-pathed parterre of modern origin, devised to atone so far as possible for the irreparable damage wrought in the days when the "naturalistic" enthusiasts were at the height of their power. A better fate, fortunately, befell the canals that bound the green, to the north of the house, and the long pool whose reflections enliven the vista through the woodland commanded by the windows of the north front. In James' translation of Le Blond's book occurs this passage: "Fountains and water are the soul of a garden, and make the principal ornament of it."

In the planning of his canals James consistently reflected contemporary continental influence in a dignified, pleasant and reasonable fashion without any of those whimsical exaggerations and overwrought mannerisms that eventually caused a revulsion of feeling and paved the way for the downfall of organized form in garden design when "Capability" Brown began his mischievous crusade to convert the erstwhile ordered beauties of English gardens into incoherent muddles of artificial savagery. In the scheme of radial clearings cut through the screen of woods on each side of the long pool may be seen the same temperate interpretation of the principles enunciated by Le Blond as in the arrangement of the water features. The water scheme and the radial clearings are fully set forth in the plan prepared by Richardson & Gill when they undertook the restoration of Warbrook. The canals had been partly filled up, but they have now been cleared and are restored to their pristine condition.

Stables, Warbrook, Eversley, Hampshire

SMALL BUILDINGS

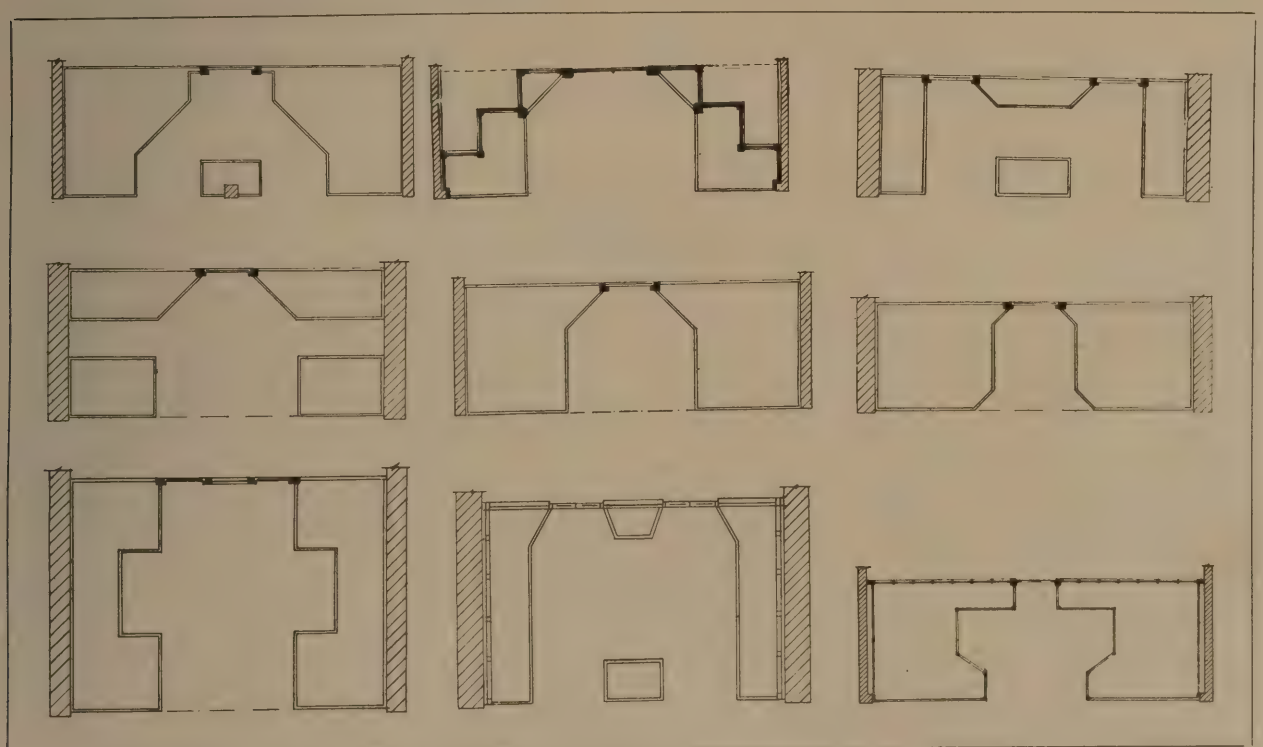
The Architecture of the Small Shop

PART II. INCREASING DISPLAY FRONTAGE BY THE USE OF METAL AND GLASS WINDOWS

EDITOR'S NOTE. Part I of this series of articles, entitled "Design Derived from Period Precedent," appeared in the February, 1925 issue of THE ARCHITECTURAL FORUM.

FROM the standpoint of the architect, the problem of designing display fronts for small stores and shops is divided into two basic parts. The first of these, as dealt with in the earlier article of this series, is primarily a problem of architectural design in which the shop front as an integral part of the facade composition is to be architectural in its nature, with opportunities for the actual display of goods as perhaps a feature secondary to the pleasing appearance of the exterior. For stores and shops of this nature the fronts are usually developed from designs based on a period precedent, and are often composed of carefully detailed architectural entrances with window surfaces broken into small panes and recesses. The second part of the problem is to provide large areas of unbroken display window space, or to provide recessed or arcaded shop fronts when extensive displays are required for comparatively narrow lot frontages common in cities and towns.

The great increase in land values throughout the commercial districts of larger cities and towns has brought about a condition under which the area of the individual store or shop has been reduced to the minimum, particularly the width of its frontage. At the same time requirements for almost all types of merchandise display have grown, so that the natural solution of the problem has been the development of carefully planned shop windows, such as the several suggested in the small sketches presented herewith. It will be noted that in each instance an effort has been made to increase the actual footage available for display windows, and that by well planned recesses and the use of the so-called "island" show windows it is



A Few of the Many Practical Planning Methods Which Are Possible with the Use of Metal and Glass Windows and Which Provide Greatly Increased Linear Footage of Show Windows for Smaller Shops and Stores

possible to obtain a display frontage of three or four times the number of linear feet represented by the actual width of the store. The introduction of practical types of metal store fronts, in the construction of which large sheets of plate glass are held in position by specially designed metal mouldings or muntins, has made possible the provision of attractive, efficient store fronts, in which full advantage can be given to the display requirements. From the merchandising point of view, and also from that of reducing the depreciation and breakage factors, these metal and glass store fronts are unquestionably far better than anything else which has yet been devised to serve this purpose.

A careful study of this flexible method of designing shop fronts will indicate to the architect several points which might be overlooked in a hasty examination. In the first place, there are available in stock many well designed metal mouldings which can be incorporated in either the simple or the complicated shop front design. Show windows of all sizes and shapes can be built up according to the architect's wishes, and with the recessed effects which are possible there is no limit to the practical carrying out of almost any architectural scheme, with several added advantages over the older methods of setting show windows in wood or iron frames. These metal mouldings have been carefully designed to hold the sheets of plate glass in a resilient grip, which eliminates practically all of the danger of cracking and breaking, since it permits free vibration of the glass.

From the architect's point of view there are no definite standards of design established for metal and glass show windows, but the adaptability of this construction is such that the ingenious architect can readily design straight shop fronts in large glass areas or recessed fronts on almost every type of plan, while the entire front thus provided may be established as an attractive part of the exterior architecture of the building.

The purpose of this article is not to describe the technical details of metal and glass window construction, but to indicate the possibilities of plan and design from both the architectural and the equally important merchandising point of view to be achieved.

A Typical Shop Front Planned to Provide Increased Display Frontage on a Narrow Lot

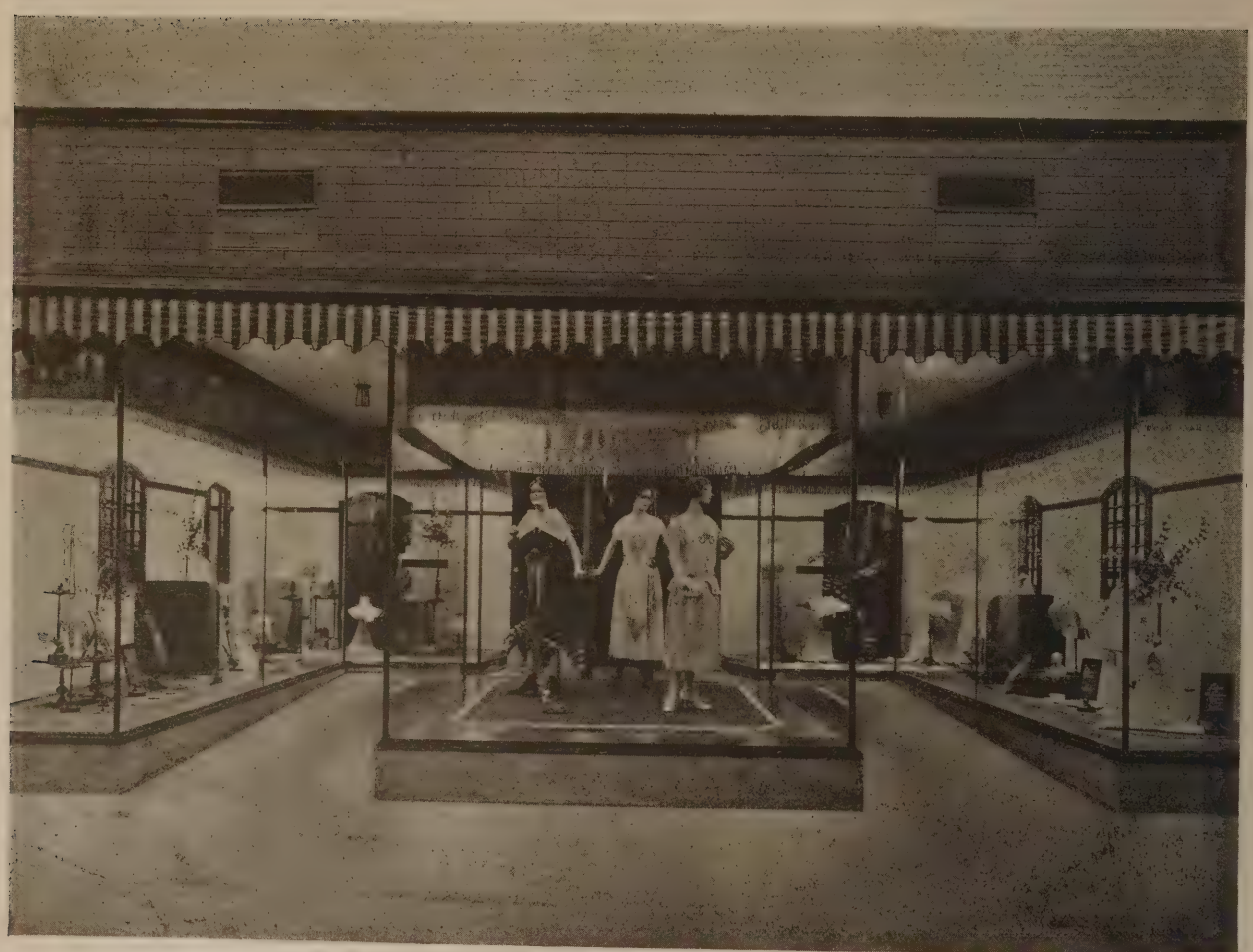
Typical Recessed Shop Fronts

The following pages illustrate many methods of planning shop fronts to meet the modern demand for increased display frontage combined with low maintenance costs and proper safeguarding of plate glass installations by being set in carefully designed metal mouldings.

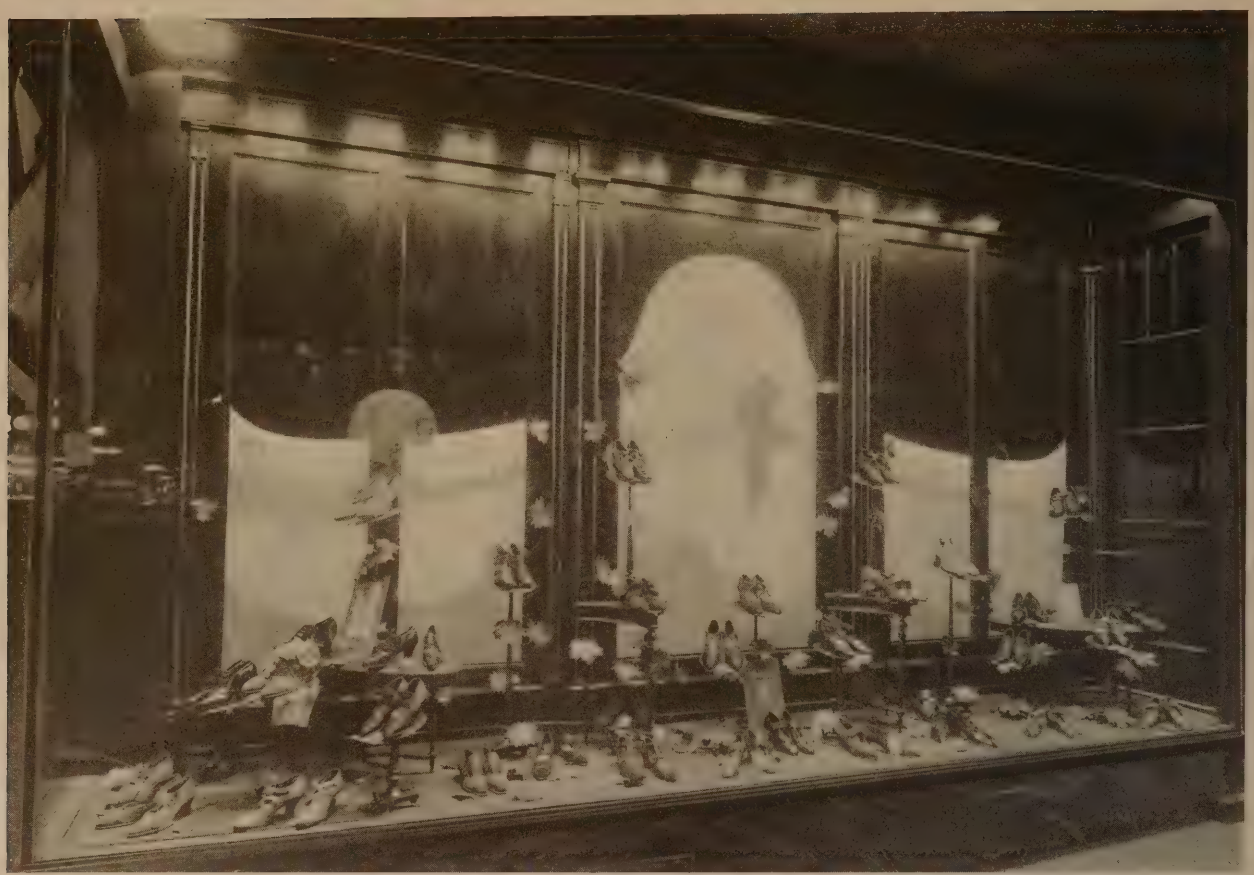
Arthur L. Kaufman Store, New Orleans; Weiss & Dreyfous, Architects

The Morrison Shop, Pittsburgh; Another Example of the Arcaded Type of Shop Front, Which Invites Passers-by to Step in from the Street and Examine Merchandise at Leisure

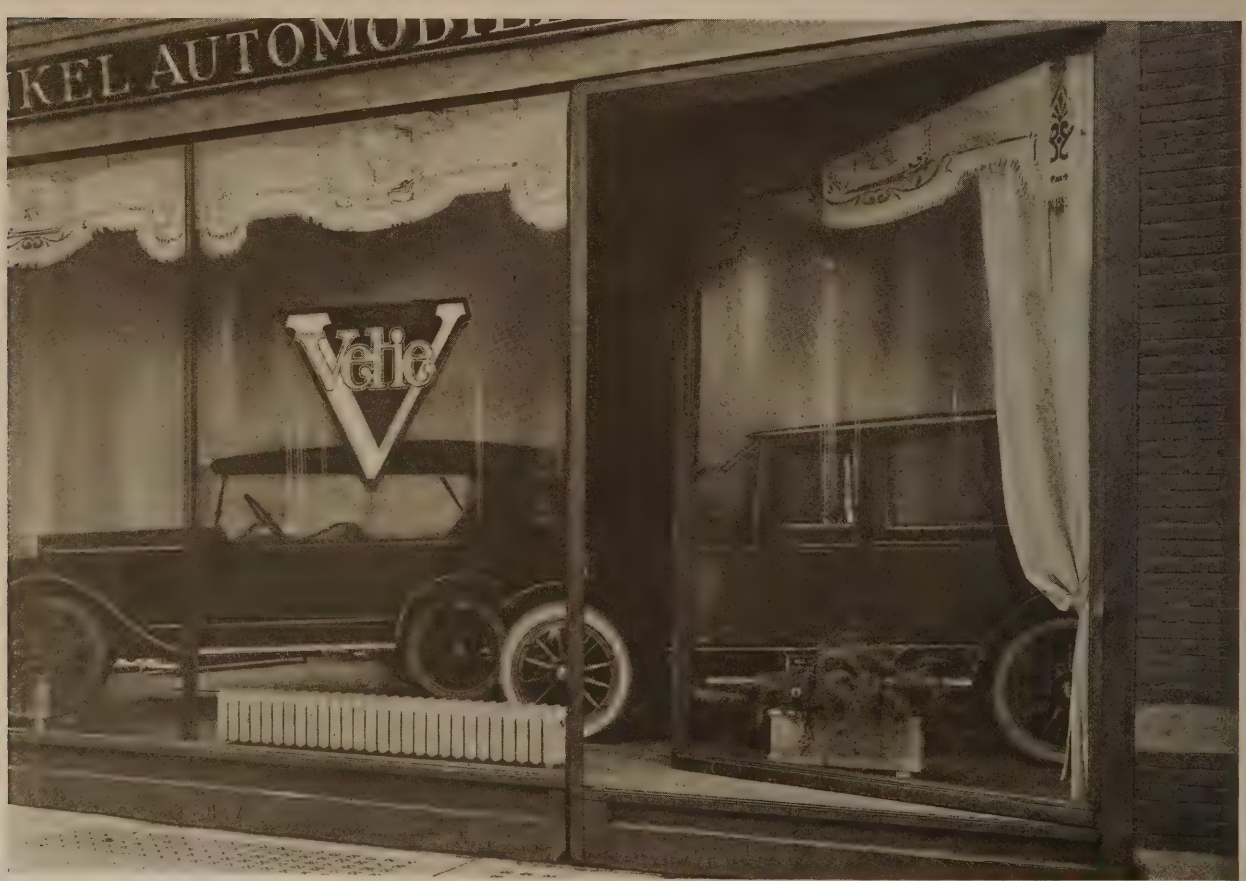
Examples of Recessed Shop Fronts with Island Display Cases



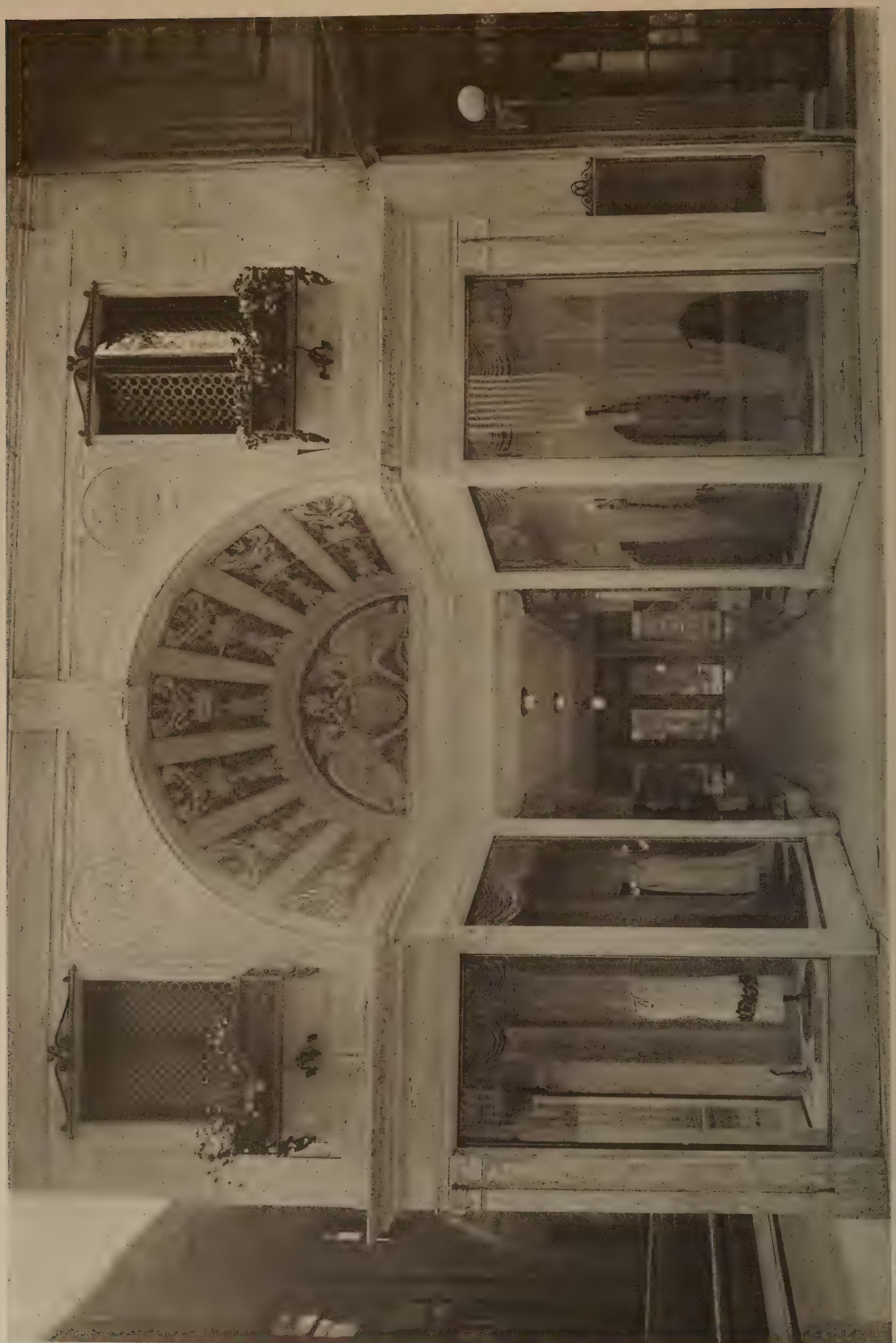
Island Display Show Windows for Wide and Narrow Frontages



Metal Mouldings Safeguard the Setting of Large Sheets of Plate Glass



Deeply Arcaded Shop Fronts Provide for Extensive Window Displays



The Blum Store, Philadelphia
Frank E. Hahn and S. Brian Baylinson, Architects

Photo, Paul Menzin Studios

Bains' Luggage Shop, Philadelphia
Frank E. Hahn and S. Brian Baylinson, Architects

Photo. Paul Monein Studios

A Shop in Montreal. Huntly Ward Davis, Architect

The Shop of Darwins, Ltd., Montreal; Huntly Ward Davis, Architect

TWO SHOPS IN MONTREAL

HUNTLY WARD DAVIS, Architect

THE interesting examples of shop front design in metal and glass shown on this and the opposite page indicate problems which very often arise in the field of small shop and store planning.

The problem of the Darwins store was to provide a mezzanine giving valuable floor space (see illustration at right) without making the deep entrance appear low. The outer bulkhead of the mezzanine was kept about 15 inches from the street line, and formed the upper part of the window with muffled glass in metal astragals. Over the doorways were placed semi-circular mirrors, giving the effect of a coved ceiling behind the semi-circular grilles. The apparent height of the ceiling over the windows and entrance, only 9 feet, 2 inches from the floor, was increased by painting white.

Ordinarily the solid background of a show window completely shuts off the daylight from the interior of a shop. In this instance the plan makes possible the entrance of daylight, besides making the window displays visible from inside as well as out.

In the Sobie Silk Shop there was a frontage of only 9 feet, 10 inches. A center entrance was provided, recessed 15 feet from the street line to the door, but a spacious effect was obtained by making this entrance 4 feet, 5 inches wide at the front and 3 feet, 1 inch at the back, narrowing gradually.

Shop with Full Display and Double Entrance, Madison, Wis.

Candy Shop, St. Louis. Preston J. Bradshaw, Architect

A Planning Method for Increasing Corner Display

A Treatment Where Two Entrances Are Required

Recessed Shop Fronts, Each with Two Entrances

Methods of Extending Display Frontages on Narrow Lots

Cunningham Showroom, Los Angeles; Foss Designing Co., Architects

Photo. Sigurd Fischer

An Unusual Shop Front on East 42nd Street, New York

Richard Haviland Smythe, Architect

INTERIOR ARCHITECTURE

Napoleon's Bedroom at Compiegne

By C. HAMILTON PRESTON

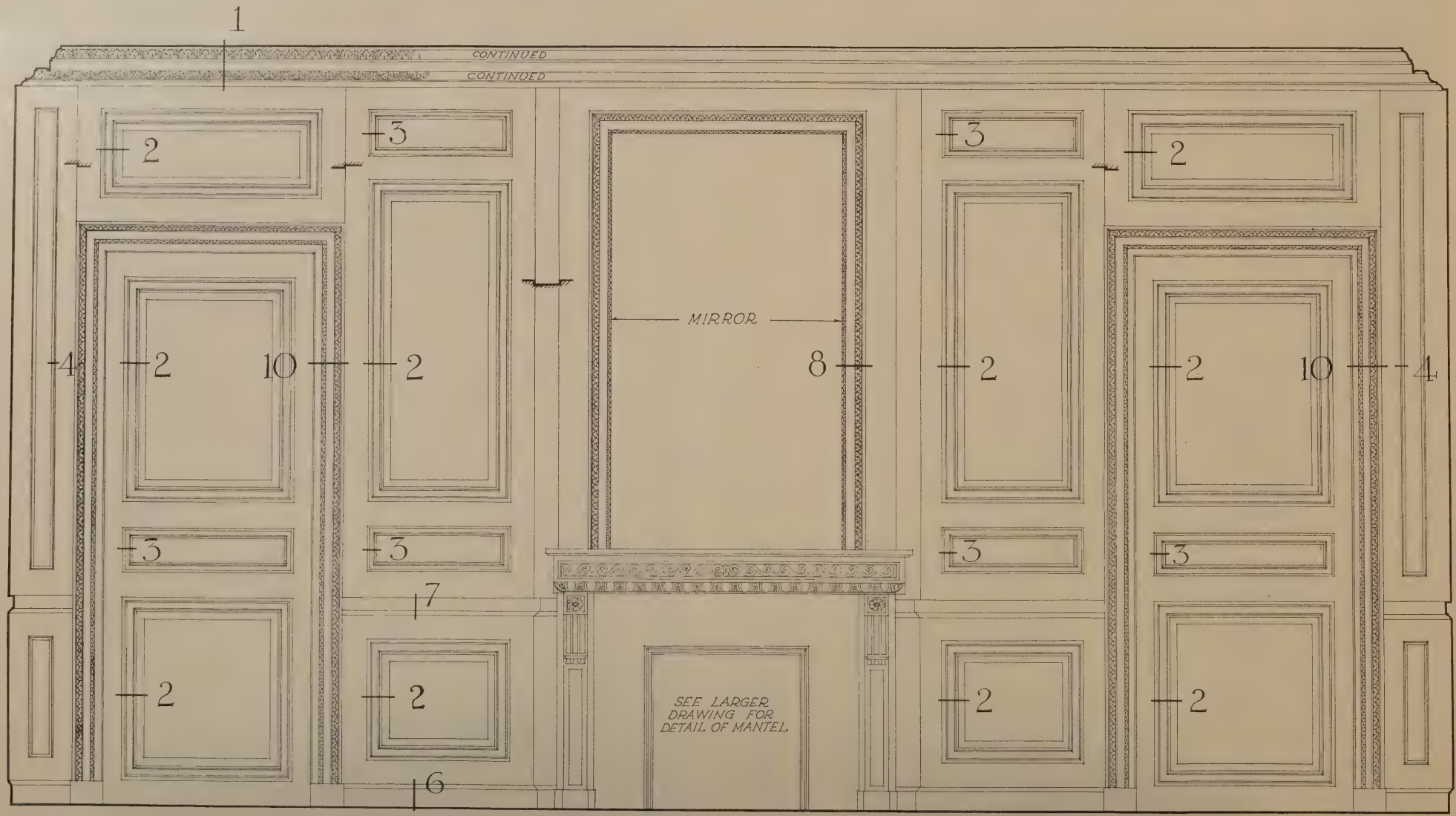
THE Palace of Compiegne, in which is found the subject of these pages, is situated about 60 miles from Paris, and from earliest times it vied with Versailles and Fontainebleau as a favorite residence of the various monarchs of France. The present palace was designed and built by the renowned Gabriel, under Louis XV, and the exterior is recognized immediately as the work of this master. In many details it recalls his two graceful palaces in the Place de la Concorde, in Paris.

The plan of the Palace of Compiegne is unusual, triangular in shape, and most skillfully worked out. The entrance presents a screen colonnade, very dignified in proportions, the entrance itself being marked by a motif with a segmental pediment. The massive iron gates of this entrance are of beautiful design and workmanship, and the large rectangular forecourt is impressive. On the entrance side the palace is three stories in height, while on the garden side it is of but two, formerly raised on a high stylobate.

Louis XVI fitted out a large suite of rooms on the garden side for Marie Antoinette, and the subject of these drawings is one of the intimate rooms of this suite; it is, in fact, the room next to the bedroom of the little Dauphin, which opened immediately into the boudoir of Marie Antoinette and the state apartments. It is a room of particular interest.

When Napoleon came to Compiegne he was charmed with this room and immediately selected it for his own bedroom, no changes being made in the architecture, but merely in the interior decorations. The room is spacious, but low and intimate. As regards design it is one of the loveliest of the smaller apartments. The mantel of pure white marble is exquisite in proportion and detail; it seemed to have been a favorite, and was reproduced in several other rooms in various colored marbles. On either side of the mantel are perfectly balanced doors and panels, admirably proportioned and very pleasing in effect. Above the mantel there is a superb mirror in a gold frame with interesting detail. The mouldings are bold and vigorous, and all the detail has that almost classic purity and refined dignity which seem peculiar to the Louis XVI work at Compiegne.

Napoleon's Bedroom at Compiegne, As It Appears Today

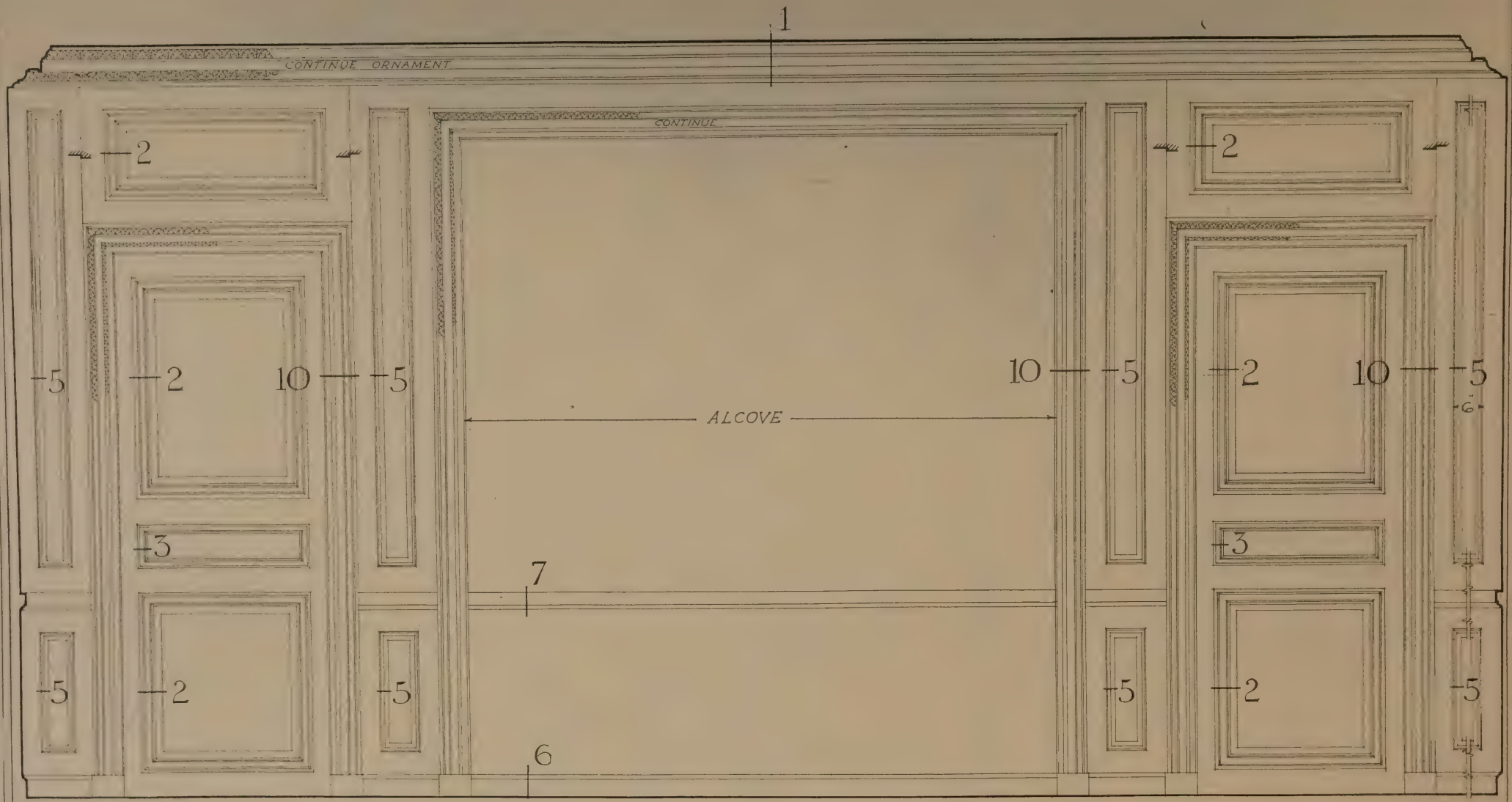


ELEVATION A~A

Scale $\frac{1}{2}$" = 1 Foot

NAPOLEON'S BEDROOM

COMPIEGNE

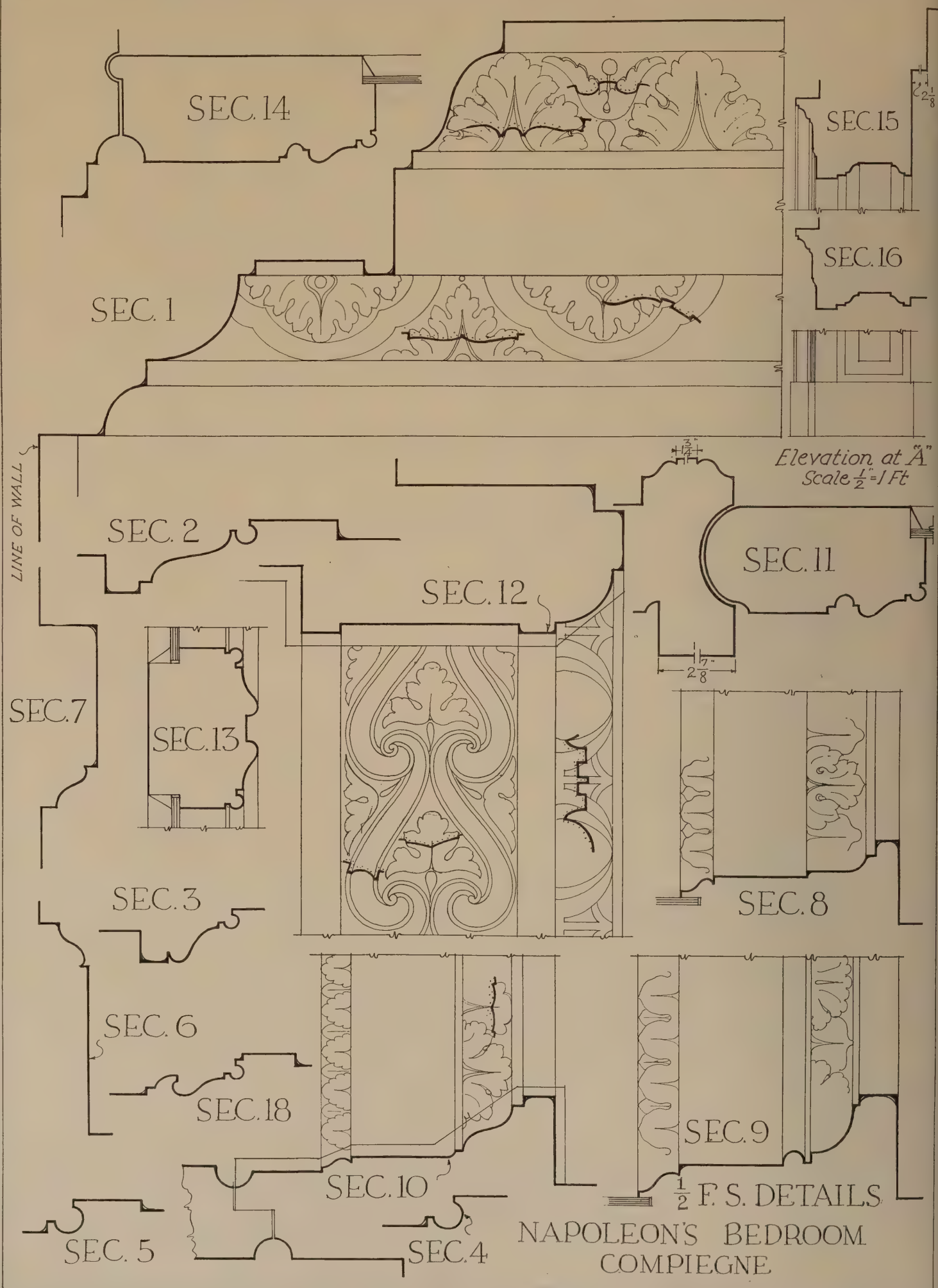


ELEVATION B~B

Scale $\frac{1}{2}$" = 1 Foot

NAPOLEON'S BEDROOM

COMPIEGNE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Elevation at "A"
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LINE OF WALL
SEC. 2
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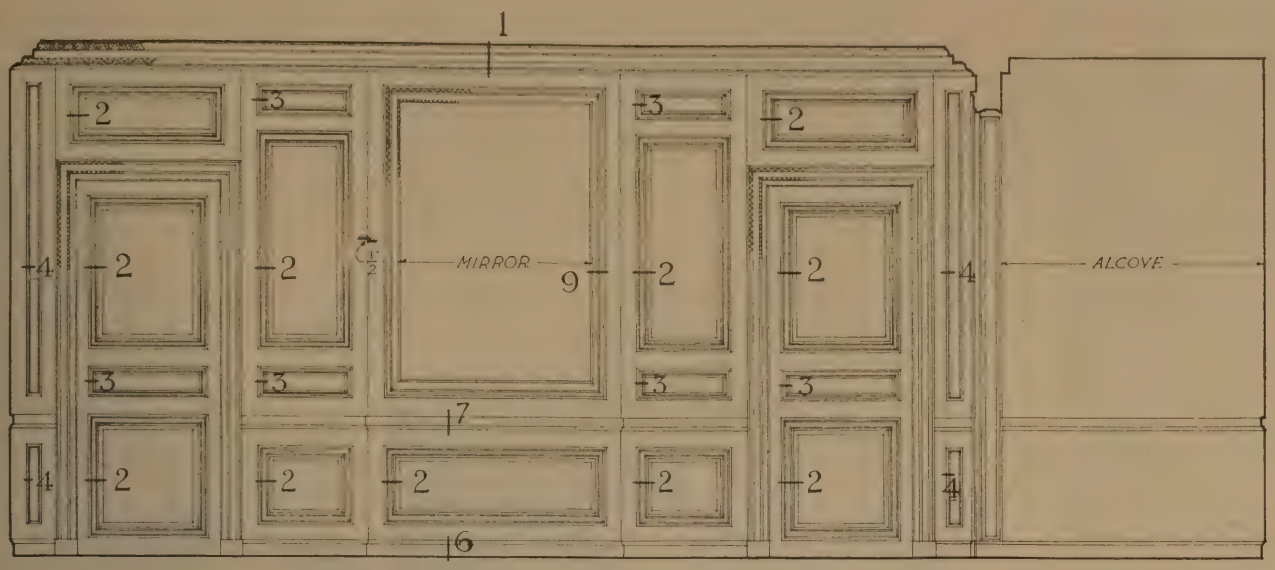
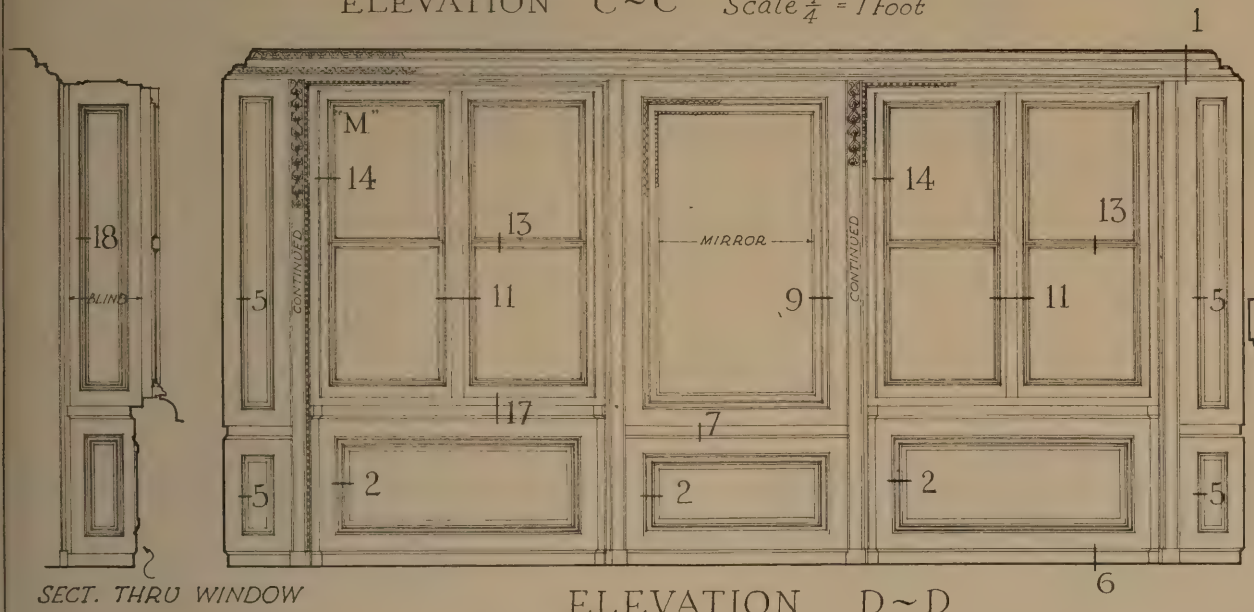
1/2 F. S. DETAILS
NAPOLEON'S BEDROOM
COMPIEGNE

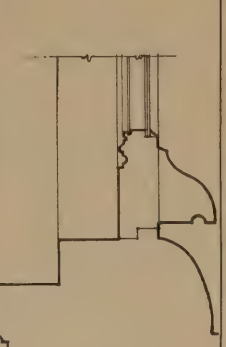


ELEVATION C~C *Scale $\frac{1}{4}$" = 1 Foot*

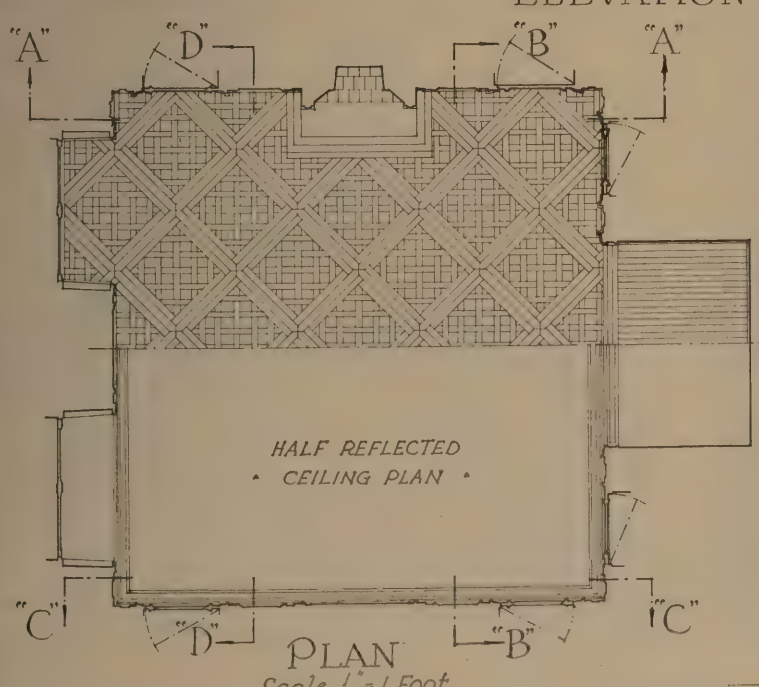


SECT. THRU WINDOW

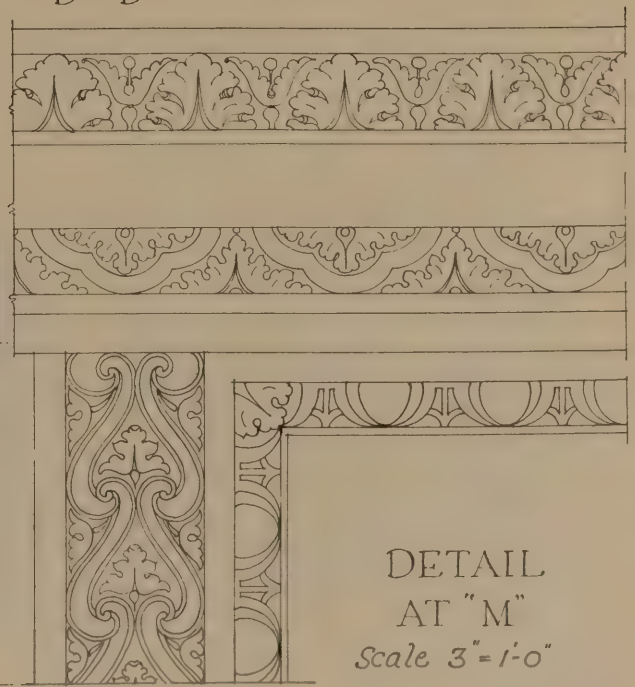
ELEVATION D~D



SEC. 17
Scale $1\frac{1}{2}$" = 1 Ft

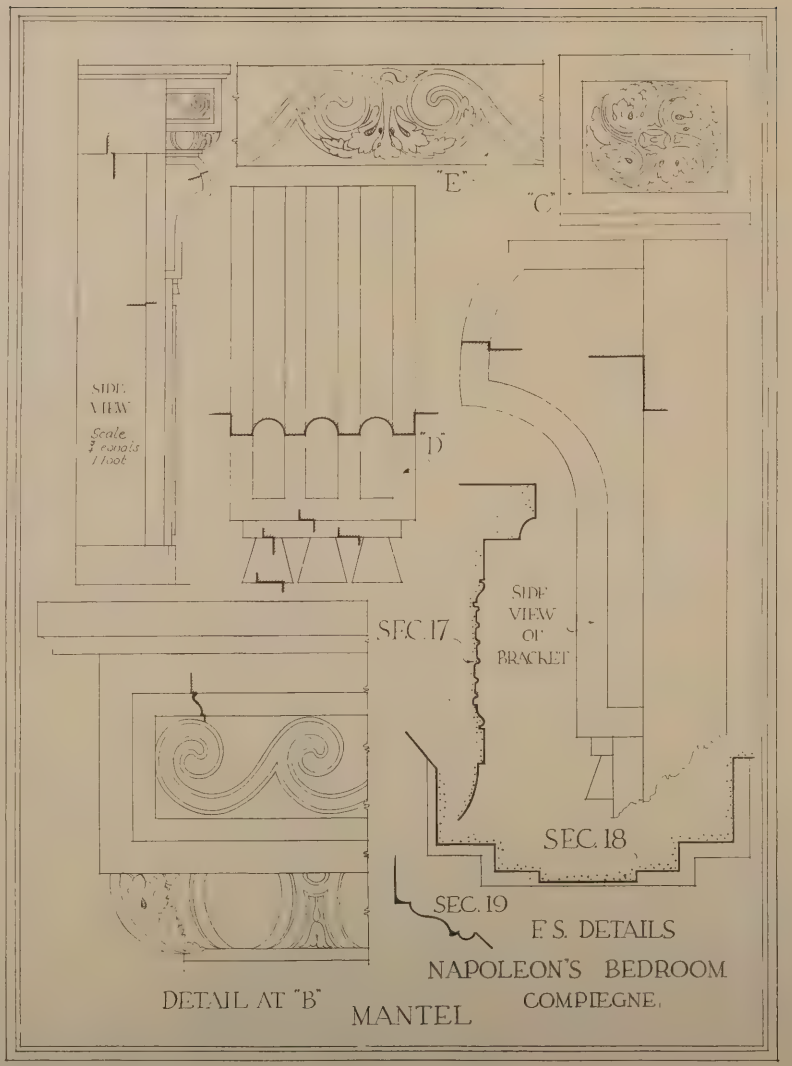


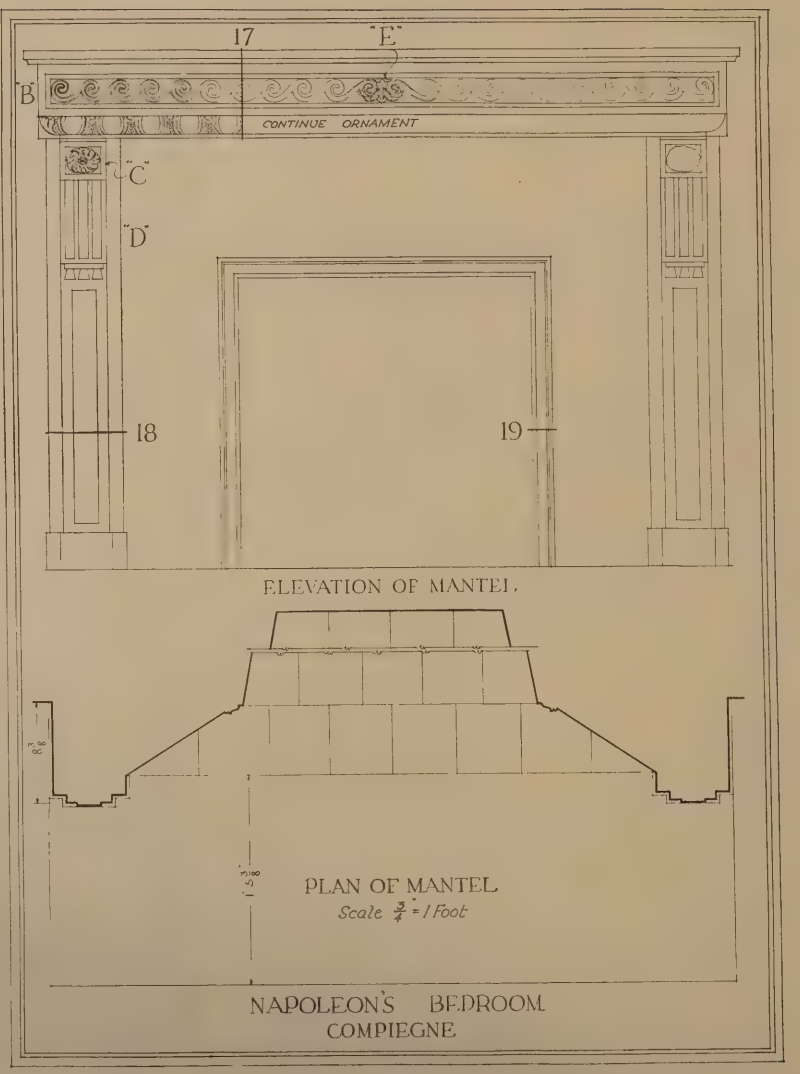
PLAN
Scale $\frac{1}{8}$" = 1 Foot



DETAIL
AT "M"
Scale 3" = 1'-0"

NAPOLEON'S BEDROOM
COMPIEGNE


"E"
"C"
"D"
SIDE VIEW
Scale 3 equals 1 foot
SEC. 17
SIDE VIEW OF BRACKET
SEC. 18
SEC. 19
DETAIL AT "B"
MANTEL
F. S. DETAILS
NAPOLEON'S BEDROOM
COMPIEGNE.


17
"E"
"B"
CONTINUE ORNAMENT
"C"
"D"
18
19
ELEVATION OF MANTEL
PLAN OF MANTEL
Scale 3/4 = 1 Foot
NAPOLEON'S BEDROOM
COMPIEGNE

DECORATION & FURNITURE

Design and Craftsmanship in Early American Silver; Part II

By EDWIN J. HIPKISS

IN the May issue of THE ARCHITECTURAL FORUM there were given some notes regarding the work of certain early American silversmiths. As was then pointed out, there existed a definite relationship between the design of furniture of the different colonial periods and the design of the domestic silver of the same eras, both furniture and silver exhibiting a constant tendency toward sophistication and refinement, with a consequent loss of virility. These notes are added to aid the student in the study of the work of colonial silversmiths, and the illustrations show the effect of constant development in the design of silver and furniture, and also in the interior architecture which supplied an appropriate background for the use of both.

American Silver, Made about the Middle of the Eighteenth Century

Engraving. Many of the silversmiths engraved their work with a knowing sense of style. In many plates and bowls of the utmost simplicity it is interesting to see how the engraved inscription has been managed to form effective decoration. Some of the best of such engraving is upon different objects of silver bearing the marks of William Swan (1715-1774) and of Jacob Hurd (1702-1758). Nathaniel Hurd, the son of Jacob, was not only a very skillful worker of "plate," but also designed and engraved many bookplates now eagerly sought by collectors of Americana. One

American Chair in the Style of Chippendale

Woodwork in the Jeremiah Lee Mansion, Built in 1768

among many of his engravings was a bookplate for Harvard College.

Chasing is a method of enriching plain surfaces by means other than engraving. The process is to chase or work a design into the metal with hammer and tools shaped like chisels but lacking the cutting edges. A hollow piece, such as a cup, a bowl or a tankard, was filled with hot pitch, and when this had cooled it formed a solid, resistant body against which punch marks or lines could be struck in with hammer and tools without punching through the walls of the piece or changing its shape. Engraving differs from this in that it consists of cut lines ploughed through the surface of the metal with a sharp graver. Use of chasing is characteristic of seventeenth century silver; both chasing and engraving were used about the middle of the eighteenth century, while later objects were enriched quite generally with engraving only, which nevertheless gave a rich effect.

American Silver, Made Toward the End of the Eighteenth Century

Historic American Silver. Two extremely interesting examples of American silver, probably unmatched for historic interest, are a punch bowl made by Paul Revere (1735-1818) and an inkstand by Philip Syng (1703-1789), of Philadelphia. The bowl was made in commemoration of the vote in the Massachusetts Bay House of Representatives by the "Glorious Ninety-two" who voted not to rescind a circular letter of protest which had been sent to sister colonies. This vote—"not to rescind"—was taken, during the year 1768, in defiance of a command by George III, and caused great excitement and much celebration in the colonies. The bowl is inscribed with the names of the "Sons of Liberty" who commissioned Paul Revere to make it. The second object, the inkstand made by Philip Syng, is now preserved in Independence Hall. Philip Syng was a silversmith of distinction, a respected citizen, and a friend of Franklin. It seems probable that this silversmith was unaware of the significance that an example of his handiwork would have for future generations of Americans, but out of his inkstand were written into American history, by signature, the Declaration of Independence and the national Constitution.

Church Silver. Our older churches were the possessors of much fine silver; there were flagons, tankards, basins, beakers, etc., some of which have been destroyed either by accidental fire or by the fire of the melting pot. Much American silver was undoubtedly carried away by the departing Loyalists.

American Chair in the Style of Hepplewhite

Door Trim in the Cook-Oliver House, Salem

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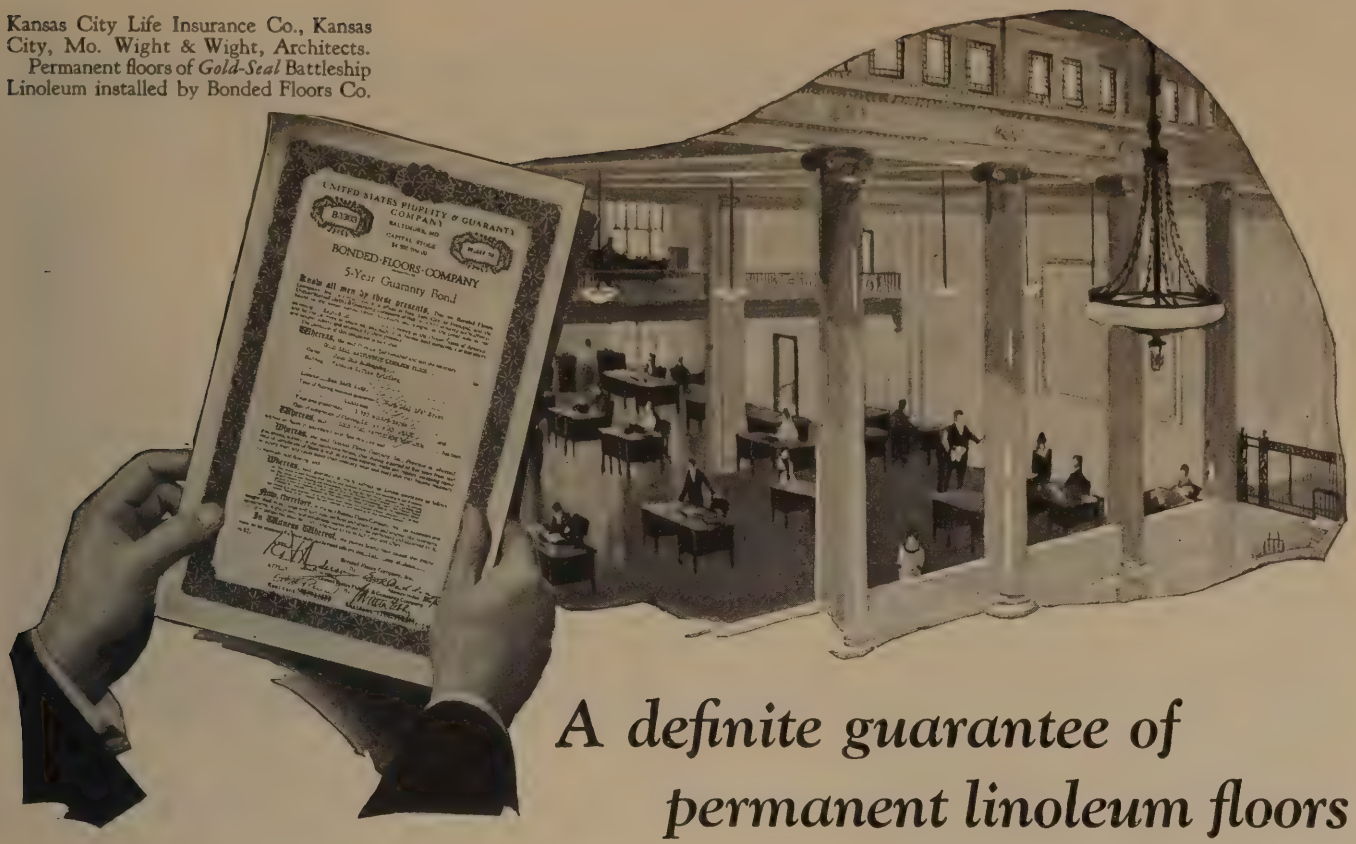

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Reading Room of Centennial Memorial Building, Springfield, Illinois, where walnut is used for trim and furniture.

Edgar Martin, Architect.

Arched entrance from library to reading room of Centennial Memorial Building

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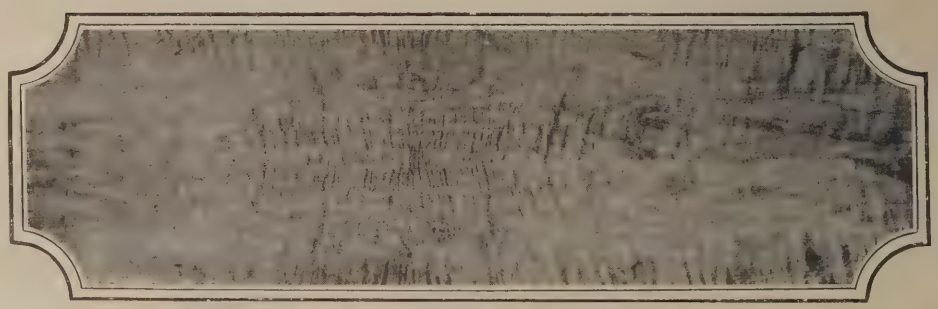

Beautifully matched panel of American Walnut

ANGORA VELVETS

with the beauty of silk and the durability of mohair

The appreciative Arabs called it "muhayyar" — this silky hair of the Angora goat. This soft sounding name, meaning "choice and select," aptly describes the lovely, durable Angora velvets of today.

THE ingenuity of two widely separated peoples of the Old World, gives us, four hundred years later, these gorgeous long-lived fabrics called Angora velvets.

For hundreds of years the picturesque, adventurous Turks counted great herds of Angora goats as part of their caravans. These they prized for their long silky hair which they wove into a durable cloth called mohair.

On the other side of the world, the celebrated weavers of 16th Century Flanders, feeling the need of a pile fabric of greater strength than their lovely but perishable silk velvets, substituted this animal fibre for silk and produced the first mohair velvets.

But ingenious as those Flemish weavers were, their new velvets were stiff in texture and suitable only for the more formal and geometric designs that have since characterized mohair velvets.

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The durable Angora velvets of today are just as flexible in design and color as any of their silken kin that ever graced palace walls amid the splendours of the Renaissance.

The two velvets shown here illustrate this new scope in design. The pattern on the right calls to mind a lovely 18th Century brocade. Small floral miniatures crowned by tiny bowknots hang suspended in lozenges of delicate leafage, a design typical of silk fabrics. The fabric on the left, while patterned with a more traditional mohair design, shows how gracefully the silken texture of Angora velvets responds to the "gaufrage" process, a pressing down of certain portions of the pile.

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Infinitely varied have been the designs woven into silk velvets through the centuries—now the silky texture of Angora velvets means that the long-wearing mohair can be patterned just as beautifully, just as diversely.

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Contractor, Geo. A. Fuller & Co.
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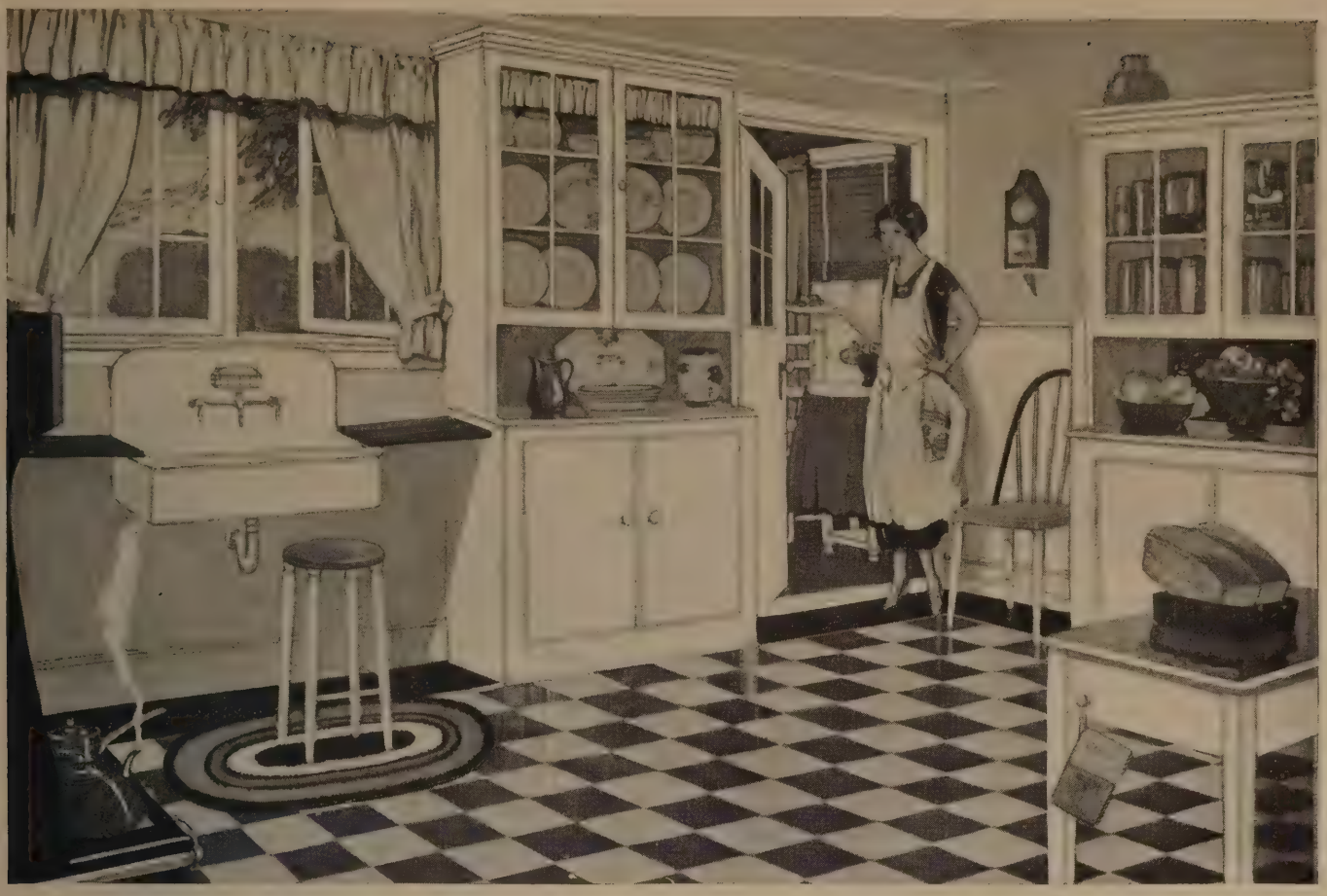

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CONCRETE WALLS....	S-W Concrete Wall Finish	Old Dutch Enamel, Gloss		
CEMENT FLOORS.....	S-W Concrete Floor Paint	S-W Concrete Floor Paint		
EXTERIOR WOOD SURFACES.....	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel, Gloss	S-W Preservative Shingle Stain S-W Acid or Oil Stain	Rexpar Varnish
EXTERIOR METAL SURFACES.....	Kromik Structural Steel Primer Metalastic (for finishing coats)	Old Dutch Enamel, Gloss		
FACTORY WALLS (Interior)	S-W Eg-Shel Mill White S-W Fume Resisting White	Old Dutch Enamel or Enameloid		
FLOORS (Interior Wood) .	S-W Inside Floor Paint (the enamel-like finish)	S-W Inside Floor Paint (the enamel-like finish)	Oil Stain or Floorlac Varnish Stain	Mar-Not Floor Varnish
GALVANIZED IRON SURFACES.....	S-W Galvanized Iron Primer (Finish with any Paint)	S-W Galvanized Iron Primer and Old Dutch Enamel		
INTERIOR WALLS AND CEILINGS.....	Flat-Tone Wall Finish S-W Eg-Shel Mill White	Old Dutch Enamel or Enameloid		
INTERIOR WOOD TRIM.....	SWP (Sherwin-Williams Prepared Paint)	Old Dutch Enamel or Enameloid	S-W Acid Stain S-W Handcraft Stain S-W Oil Stain	Scar-Not Varnish Velvet Finish Varnish (for imitation rubbed effect)
PORCH FLOORS AND DECKS	S-W Porch and Deck Paint			
RADIATORS AND PIPES.....	Flat-Tone Wall Finish or S-W Gold Paint S-W Aluminum Paint	For White—S-W Snow White Enamel For colors—Enameloid		
ROOFS—Metal.....	SWP or Metalastic (if Galvanized, prime with S-W Galvanized Iron Primer)			
ROOFS—Wood Shingle...	SWP		S-W Preservative Shingle Stain	
STACKS AND HOT SURFACES.....	Salamander Smoke-Stack Black			
STRUCTURAL STEEL..	Kromik Structural Steel Primer Metalastic (for finishing coats)			
TO DAMP-PROOF FOUNDATIONS....	S-W Antydamp			
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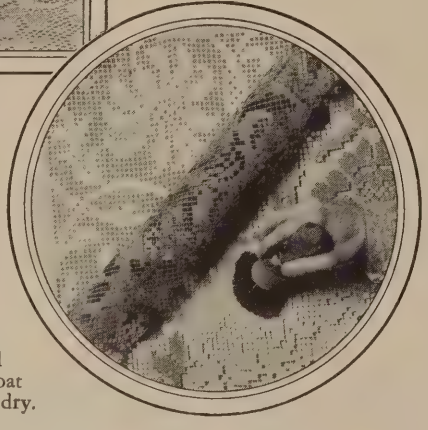
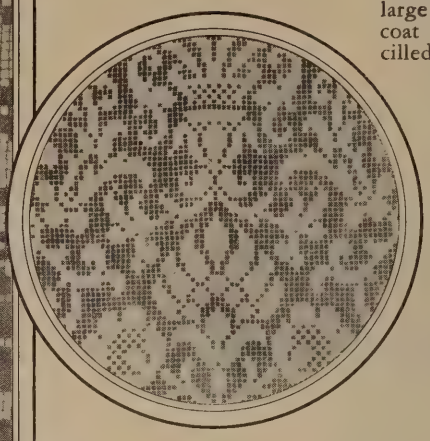
The effect above was secured with a dark ground color, and a light finish stencilled on.

An ordinary lace curtain of fairly large mesh is made stiff and non-absorbent by a thin coat of shellac on both sides.



The lace is then used as a stencil through which a finishing coat is tamped with the stencil brush, over a ground coat that has been allowed to dry.



The treatment in the circle is just the opposite of the large panel. The ground coat is light and the stencilled finish is dark.

Distinctive Wall Effects

The Lace Stencil Finish

The fourth of a series showing how wall finishes are obtained with Dutch Boy white-lead and Dutch Boy flatting oil.

BY M. REA PAUL, *Consulting Colorist*

THE Lace Stencil Finish is most frequently used in panels to lend a distinctive atmosphere to the decorative treatment of interiors such as those in the more elaborate residence, the theatre, or the ball room. It gives a clean-cut pattern which with the intricate design results in a decidedly interesting effect.

Write for actual samples

You can secure actual painted samples of the Lace Stencil Finish and any or all of the finishes previously described in this series, including two-tone figured finishes of various types, if you will write the Department of Decoration in care of our nearest branch. Samples are accompanied by detailed instructions, convenient for filing.

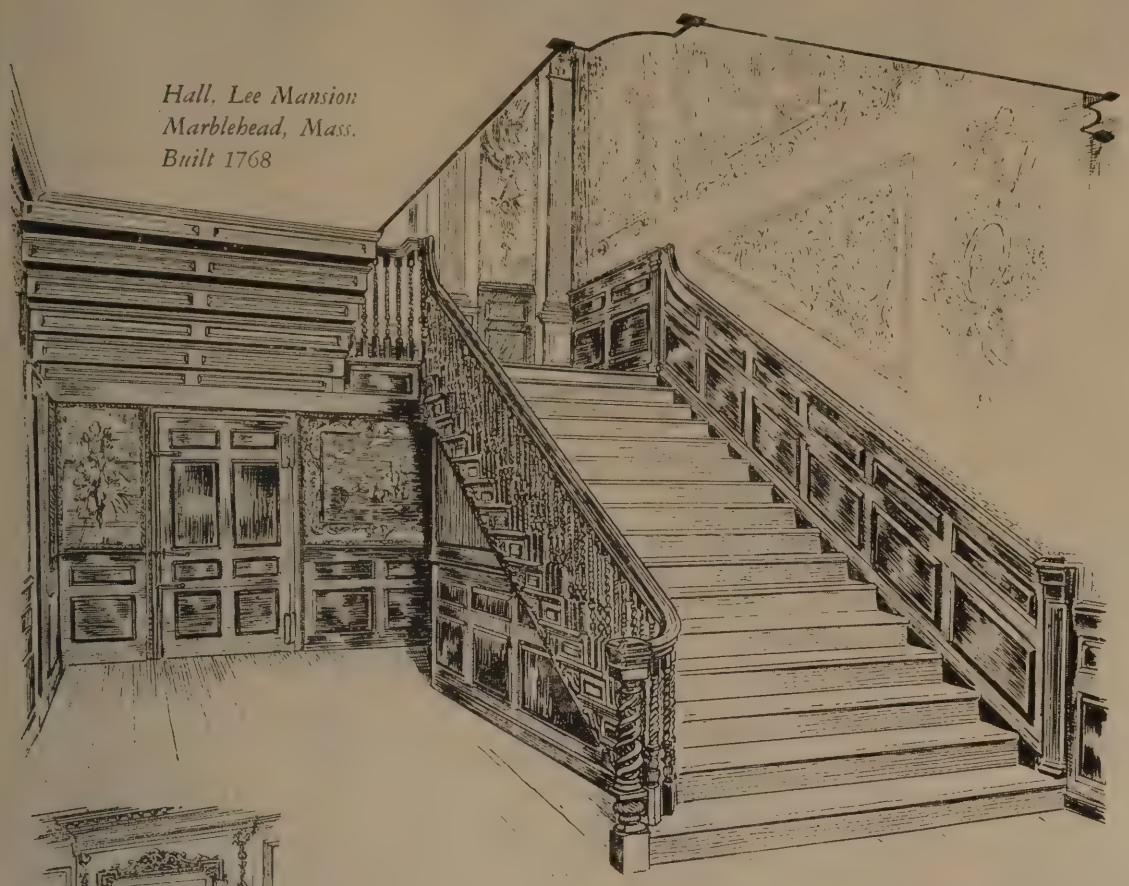
The Department of Decoration of National Lead Company, conducted by paint and color specialists, will help you carry out decorative treatments you have in mind. They will help select the schemes of treatment, submit color suggestions and, if you wish, assist in the writing of your specifications.

Next month the Tiffany Finish—one of the most desirable of the painted wall finishes—will be described.

NATIONAL LEAD COMPANY

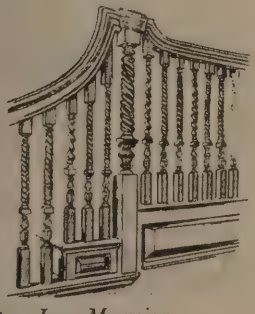
New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

THIS IS NUMBER TWO OF A SERIES OF "EARLY AMERICAN ARCHITECTURE"

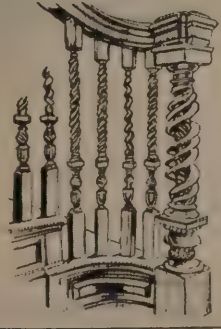


Hall, Lee Mansion
Marblehead, Mass.
Built 1768

Mantle, Lee Mansion



Baluster, Lee Mansion



Newel-Post,
Lee Mansion

WAY back in the days when the United States was still a British Colony, the firm of Devoe had its inception. 171 years have passed since then. Each year has added naturally to Devoe's experience; each year has more firmly established the Devoe Tradition of Quality.

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FOR its majestic beauty and enduring utility, the colonial style of architecture won great favour from the American people. Its dignity was well suited to the conditions of American life—and its charm was of the kind to withstand time and weather.

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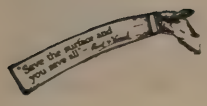
Eagle White Lead is one of many products through which Eagle-Picher serves both individuals and industries. Among these are Eagle Sublimed Blue Lead for rust-proofing metal surfaces, Eagle Babbitts and Solders, Pipe and Fittings, Dry Pigments for paint grinders, Eagle Lead Wool for plugging oil wells —a lead product for every lead purpose.

A Book About Painting

The above illustration reproduces one of the full color paintings in the book, "The Painting of Homes," containing useful color suggestions for home beautification. We will gladly send you a copy free.

The EAGLE-PICHER LEAD COMPANY, 208 South La Salle Street, Chicago · *Branches in all principal cities*



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Sanymetal in Ferndale School, Ferndale, Mich.

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IT'S a significant fact that when an architect makes his first installation of Sanymetal, he is very likely to make it "Standard Specification" from that time on. Sanymetal stands up under rough usage. It stays clean. It keeps its *better* appearance. Make a test installation in one of your buildings—you'll find Sanymetal equally adapted to school, hospital, industrial or office building work.

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Toilet and Office Partitions

This design is the identification mark for *genuine Ripolin Enamel.* All Europe knows this famous trade mark. The secret process of making Ripolin was discovered in Holland thirty years ago. Since that time Ripolin has been used throughout the civilized world.

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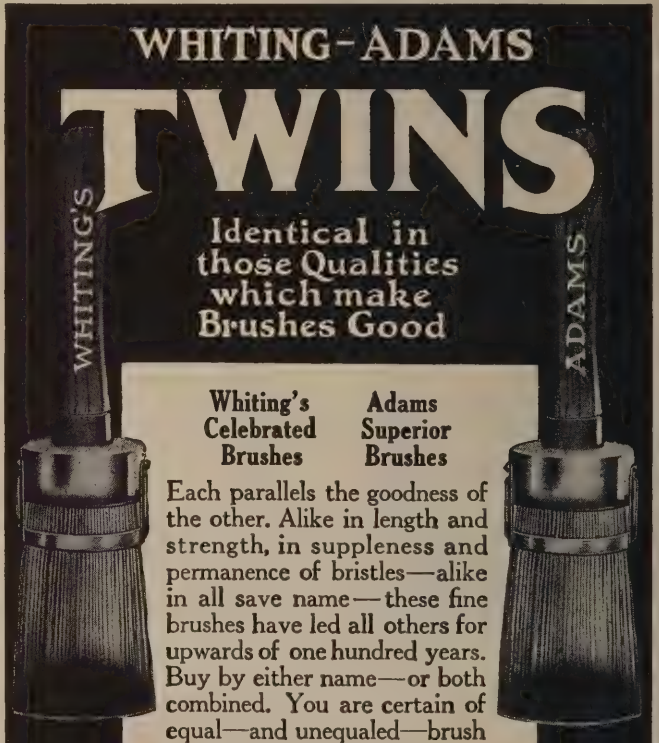

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Brush Manufacturers for 117 years and the largest in the World

Atop the hill at Williamstown—

Library, Williams College, Williamstown, Mass.
Architects: Cram & Ferguson. 13,600 sq. ft.
Pyrobar Roof Tile used, covered with ornamental tile

stands the imposing new library of Williams College, and over this fine building is a decking of Pyrobar Roof Tile. . . . Pyrobar Tile were selected because they combine fire safety with light weight and are easily cut to fit dormers and other difficult intersections. Then, too, their low conductivity keeps top-floor rooms cool in summer, reduces fuel bills in winter. . . . We contract to erect Pyrobar. Write for booklet giving complete architectural data on this fireproof and permanent gypsum decking.

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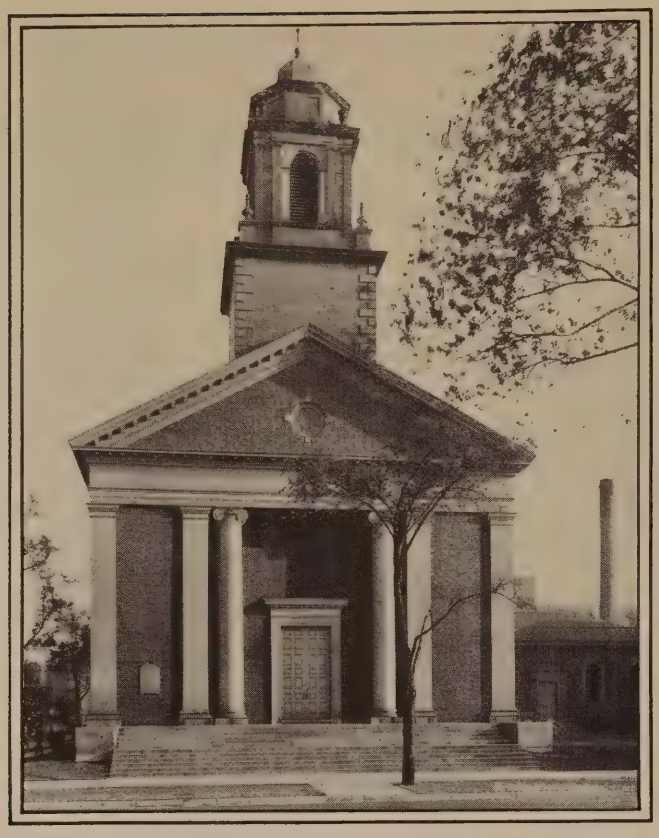

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ALWAYS revealing a faithful interpretation of the architect's ideas while expressing the stability which only years of specialization could have attained, Koll's Columns, made by Hartmann-Sanders, have won a natural preference among architects.

They are manufactured either from our own models or to the architect's specifications, and shipped ready to erect.

Our Catalog I-47 brings complete details. Address Hartmann-Sanders Co., 2187 Elston Ave., Chicago. (Eastern Office and Showroom, 6 E. 39th St., New York City.)

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Colonial KOLL LOCK-JOINT COLUMN *Columns*
THEY CANNOT COME APART

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"BEAUTIFUL BIRCH FOR BEAUTIFUL WOODWORK"

Beautiful **birch**

"Beautiful **birch**" has really special advantages for HOSPITALS—beauty, hardness, versatility of use, very low absorbency, durability and—well, the rest are in the **birch** book for which

Will you please Write?

THE BIRCH MANUFACTURERS
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WATERPROOF SPAR
Varnish

MASTER VARNISH is unusually well adapted to use on floors, mop boards, woodwork, etc., in hotels, hospitals, public buildings and institutions of a similar nature. It stands a remarkable hot and cold water test and is in no way affected by the alkali contained in soaps and cleaning compounds used to wash varnished surfaces.

SPECIFICATIONS
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O'BRIEN
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SOUTH BEND, INDIANA

RODDIS DOORS

Type "A"—Unselected Birch

IN addition to the important fact that Roddis Flush Doors cannot sag, warp, shrink, swell, separate nor check, and are guaranteed forever against all such usual door faults, they admittedly are the most beautiful doors procurable.

No unsightly panels or moldings mar their broad surfaces of natural wood. They are sanitary, soundproof and fire-resisting.

All modern buildings deserve these modern doors. Leading architects specify them for important hospitals, hotels, schools, apartments, public buildings and homes. No other door delivers so complete performance.

Our 88-page reference catalog contains needed door data. A file copy should be in your office. Your letterhead's request will bring it.

RODDIS LUMBER & VENEER COMPANY, Marshfield, Wisconsin

For A Quarter-Century the Largest Makers of Flush and French Doors

Long-Bell Douglas Fir

Authoritative comments are continuously being made on the high standards of quality of our Douglas Fir lumber and timbers. In the most modern manufacturing plants at Longview, Washington, this production is having the constant attention of skilled men under capable supervision. In the half century of experience of this company certain high standards in manufacture have been attained, and it is by these standards that Long-Bell trade-marked Douglas Fir lumber and timbers are produced. Buyers desiring maximum building value in fir products should look for the Long-Bell trade-mark on the end of the piece.

Long-Bell Oak Flooring

Beautiful, durable oak floors are the result of a combination of good workmanship and good flooring. Floor permanence is an important consideration to every builder. Long-Bell oak flooring has these qualities of durability and beauty—behind it a reputation for fine flooring gained in many years of production. Your retail lumber dealer will give you further particulars.

Home ~ a milestone

HOME owning is an important milestone in the passing years.

A woman in the new home finds much to do in things dear to a woman's heart—fixing little touches of home daintiness here, soft lights there—comfort and coziness within, flowers and foliage without.

She keeps youth in a home of her own.

Make sure of the *permanence* of those things about a home that grow dear with association.

However modest the home may be, make it substantial. Build *your* home well!

For a half century Long-Bell has aided careful builders in making certain that the family savings would buy lasting home investment. Long-Bell products—Southern pine, oak flooring and hardwoods from the South, Douglas Fir and California White Pine from the West—are trade-marked Long-Bell and sold through established retail lumber dealers. Ask for them by name.

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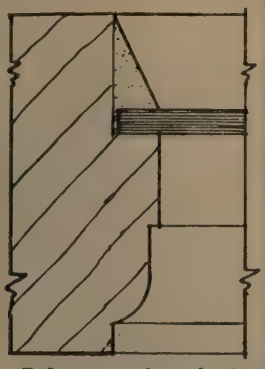
R. A. Long Bldg. *Lumbermen Since 1875* Kansas City, Mo.

LONG-BELL LUMBER
Trade Marked

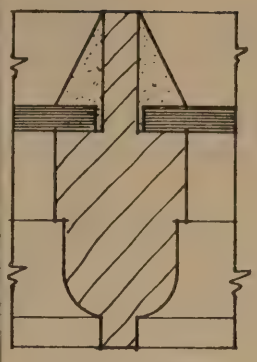
Douglas Fir Lumber and Timbers; Southern Pine Lumber and Timbers; Creosoted Lumber, Timbers, Posts, Poles, Ties, Guard-Rail Posts, Piling; Southern Hardwood Lumber and Timbers; Oak Flooring; California White Pine Lumber; Sash and Doors.

KNOW THE LUMBER YOU BUY



F. S. section stiles and rails Curtis 1¾" casement sash

A group of casement sash employing Curtis design C-1030, as used in a $200,000 residence



F. S. section muntins Curtis 1¾" casement sash

A new way to detail and specify casement sash

On special work—your best jobs—do you detail your own sash moldings, show the width of the stiles and rails in full size, and specify the woods you wish used?

And on ordinary work do you just specify the thickness of the sash you want and let come what may from the mill?

These have been the procedures in the past. Many architects who know Curtis Woodwork, however, follow a different policy.

What many architects do

They just say "Curtis casement sash No. C- so and so, 1⅜ inches (or 1¾) thick."

Here is what you get when Curtis casement sash are thus specified:

You get sash of good design. The sections illustrated here show the profiles of the moldings on the stiles, rails and muntins. Sash with these moldings are good enough for the most expensive house. They save you the time, work and expense of designing special sash for each job.

Yet these Curtis sash are available, in standard sizes, for immediate delivery. They will not hold up the job as made-to-order sash often do.

Curtis sash are made of the most carefully selected wood. Pieces with blue sap, cracks, checks, small knots, resin, are never found in Curtis sash.

A mortise-and-tenon joint holds the sash parts together, helping prevent the stiles and rails from getting out of square. Of course, Curtis also makes frames for Curtis casement sash—for both the swing-in and the swing-out type. Sash—casement and double-hung—and window frames are but two items in the complete line of Curtis Woodwork.

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Practically every wood detail used in residential work, from exterior moldings to cabinet and stair work, is produced in standard designs and sizes under the Curtis trademark. Most of the Curtis designs were detailed especially for the Curtis Companies Incorporated, by Trowbridge & Ackerman, architects, of New York City.

Curtis Woodwork is sold through lumber dealers. The Curtis dealer nearest you will be glad to give you full information about the stock he carries and the availability of other items and sizes from the mill.

Send for the Curtis catalog No. 400, "Architectural Interior and Exterior Woodwork, Standardized," for your office. It is free to architects maintaining offices who write for it on their business letterheads.

1866 CURTIS

Curtis Woodwork is sold by Curtis dealers east of the Rockies. Make sure the woodwork you buy bears this trademark. The makers of Curtis Woodwork are proud to identify their products by this mark.

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TPL Co. Redwood staves are all-heart stock. They are properly seasoned and develop practically no distortion from swelling or shrinking. Redwood tanks stay tight under all conditions and are not subject to fungus decay.

For water tanks on office buildings, apartment houses and industrial buildings, no wood tanks last longer. For many kinds of acid, oil and chemical solutions Redwood tanks have proved completely satisfactory.

Staves in all required sizes and dimensions, made from all-heart stock, can be promptly supplied.

For more detailed information on Redwood for construction purposes and industrial uses, ask for our new "Construction and Engineering Digest." It will gladly be forwarded.

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Robert Dollar Building
311 California Street

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How Can You Be Sure of Obtaining Appalachian Oak Flooring?

Interior of residence of T. R. Eichholz, Architect, Pittsburgh, Pa., floored with Ritter Appalachian Oak Flooring. Note its fine grain and uniform color in the panel to the right.

MERELY asking your lumber dealer for flooring made of Appalachian Oak would not be a sure way of obtaining the floor elegance which results from the use of **Ritter** Appalachian Oak Flooring. Such procedure would prevent neither error nor substitution.

If you were to examine every piece of flooring you received, you would be able to distinguish the highland-grown material from the ordinary run of oak flooring, because of its finer grain, its greater uniformity of texture and more even color. But this of course would not be practicable.

Therefore, the surest way of obtaining floor beauty, is to specify Ritter Appalachian Oak Flooring, every piece of which is branded—"W. M. Ritter Lumber Co." It is being used by many architects throughout the country.

For further information consult your lumber dealer or write the W. M. Ritter Lumber Company, at 115 East Rich Street, Columbus, Ohio, for technical data on Oak Flooring, which will be mailed to you free upon request.

*REMEMBER—The **standard rules for grading** Oak Flooring give consideration to such imperfections as knots, worm holes, sap, splits, and similar defects, but they do not give consideration to grain, texture or color; therefore, to be assured of beautiful Oak floors, it is necessary, in addition to specifying the grade desired, to also specify that the flooring ordered must be manufactured from Appalachian Oak. The easiest and surest way of securing a satisfactorily finished floor is to insist on **RITTER Appalachian Oak Flooring.***

RITTER
APPALACHIAN OAK
FLOORING

W. M. RITTER LUMBER CO.,
Columbus, Ohio.

Gentlemen:
Kindly send me, without obligation, your booklet giving the reasons for the superiority of Ritter Appalachian Oak Flooring and other valuable information on how to properly lay flooring.

Name.....

City.....

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Mail the coupon for complete information regarding Ritter Appalachian Oak Flooring

Technical Data on Laying Oak Floors

3. Laying Sub-Floors Over Concrete Construction

When hardwood floors are to be laid over a concrete base it is necessary to imbed in the concrete, cypress furring strips which are free from sapwood and to which the sub-floor is anchored. These strips should be spaced from 12 to 16 inches apart on centers and brought to a perfect level. Concrete should then be filled in between and struck off even with the top of the furring strips.

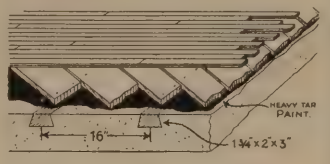

Fig. 1.

When the concrete has become **thoroughly dry,** a coat of thick tar paint should be laid over it and the furring strips to prevent any moisture that may be left in the concrete from passing to the sub-floor.

There are other ways of securing furring or nailing strips to a concrete floor without the necessity of using a concrete or cinder fill. Figure 2 illustrates one of these methods which is claimed to offer some advantages over that of imbedding the furring strips in concrete.

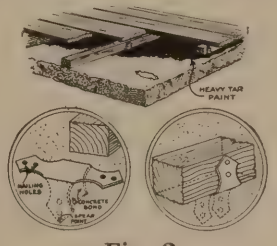

Fig. 2

After the tar paint laid over the concrete has become thoroughly dry, the laying of the sub-floor may be started. The materials and method to be used are the same as those described in the preceding advertisement which was published in the July issue of this journal.

How to properly lay strip flooring will be discussed in our advertisement appearing in the September issue of this journal.

If you would like the entire series of technical articles which it is our intention to publish on the proper method of laying Oak Floors, just send us a postal card to that effect.

See *Sweets* and *American Architect Specification Manual* for Complete Specifications on Ritter Appalachian Oak Flooring.

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Ludlow & Peabody, Architects

MISSISSIPPI WIRE GLASS CO.
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FLOORING

The Lawyers' Building, Boston, Mass.

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IT costs only one-half as much to keep clean because the surface is smooth, without joints, and totally nonabsorbent. Its ultimate life is twice as long because the surface is renewable. Duraflex-A in schools, office buildings, and hospitals, demonstrates its real worth.

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DURAFLEX-A

1340 Years' Experience

GRINNELL Adjustable Pipe Hangers ought to be the last word in such a product. Into them is built all the experience of our 134 installation foremen. On the average their experience with us is 10 years each. That's 1340 years' piping experience. No wonder these hangers make installation work easier and the finished job better. We use them invariably. You will, too, if you try them once.

OUR 120-page catalogue tells how to choose the right hanger for any job. Send for your copy today. If your jobber doesn't stock Grinnell Hangers, write us for the name of the nearest distributor. Address Grinnell Company, Inc., 285 W. Exchange Street, Providence, R. I.

Use a dozen and see why we've used a dozen million

GRINNELL
ADJUSTABLE PIPE HANGERS

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"BEST"
COLORED PENCILS

24 colors

Made especially for architects and artists. A wide variety of usable colors. Easily sharpened. Strong, yet smooth and soft.

Dixon "Best" Colored Pencils are used by leading architects and artists and are considered the best colored pencils made. You can buy them in assortments of 7, 12 and 24. They are smooth as silk—true to color—responsive. Equally important, they stand unusual pressure without breaking. Note the wide variety of colors listed below.

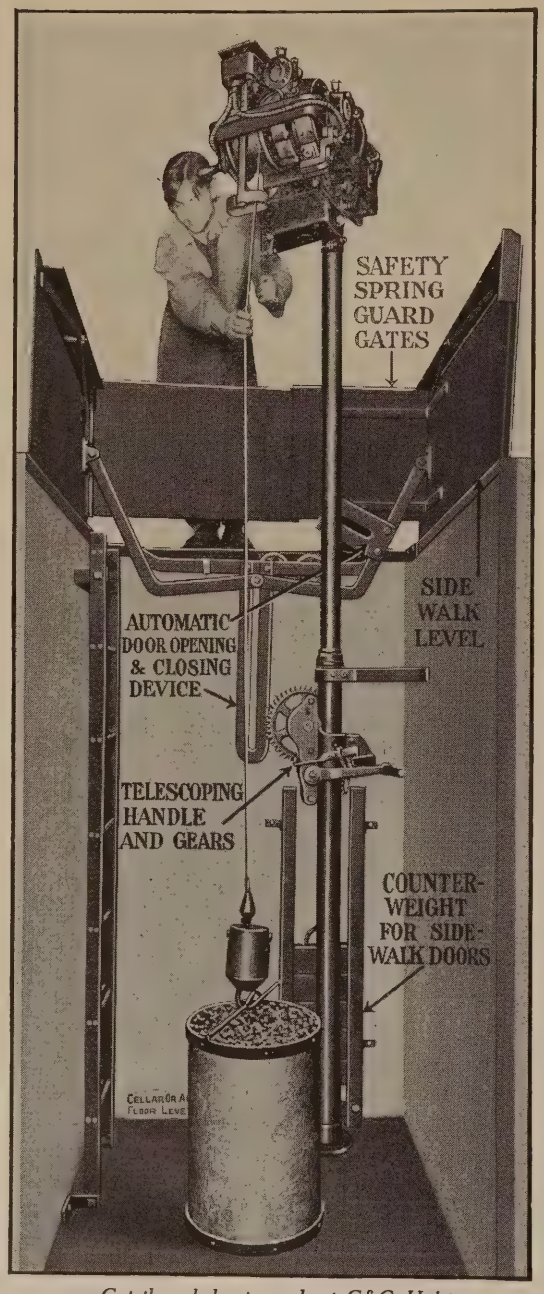
Lake Red	Violet	Azure Blue	Olive Green	Orange	Sepia
Carmine	Purple	Indigo Blue	Golden Yellow	Terra Cotta	Black
Vermilion	Dark Blue	Dark Green	Lemon Yellow	Burnt Ochre	Gray
Pink	Sky Blue	Light Green	Yellow Ochre	Dark Brown	White

We will gladly send you full-length samples on request. Please state the two or three colors you prefer.

JOSEPH DIXON CRUCIBLE COMPANY
Pencil Dept. 224-J Jersey City, N. J.

Ash Removal

Labor Saving. Safe. Speedy. *with*


SAFETY SPRING GUARD GATES
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AUTOMATIC DOOR OPENING & CLOSING DEVICE
TELESCOPING HANDLE AND GEARS
COUNTER-WEIGHT FOR SIDE-WALK DOORS
CELLAR OR A FLOOR LEVE

Get the whole story about G&G Hoists Catalog upon request. See Sweet's, pp. 2399-2407

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The G&G ELECTRIC Telescopic Hoist

REG. U.S. PAT. OFF.

With Automatic Stop and Gravity Lowering Device

OTIS

For more than a half century
The World's Word
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Offices in all principal cities of the world

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Electric Wires and Cables
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Flexible Cord
Flood Lights
Fuses
Generators (Electric)
Insulating Materials
Insulating Tape
Insulators (Glass)
Lamp Sockets (Weatherproof)
Lamps (Car Lighting and Headlights)
Lead Covered Cable
Line Materials
Magneto Switches
Motor Generators
Motors (Electric)
Pole Line Hardware
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Telephone Extension Bells (Magneto)
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Tools (Portable for Repair Shops)
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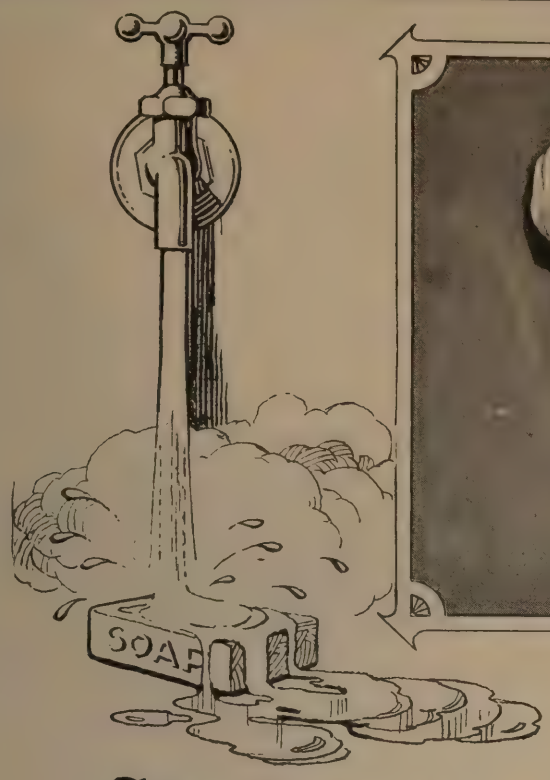

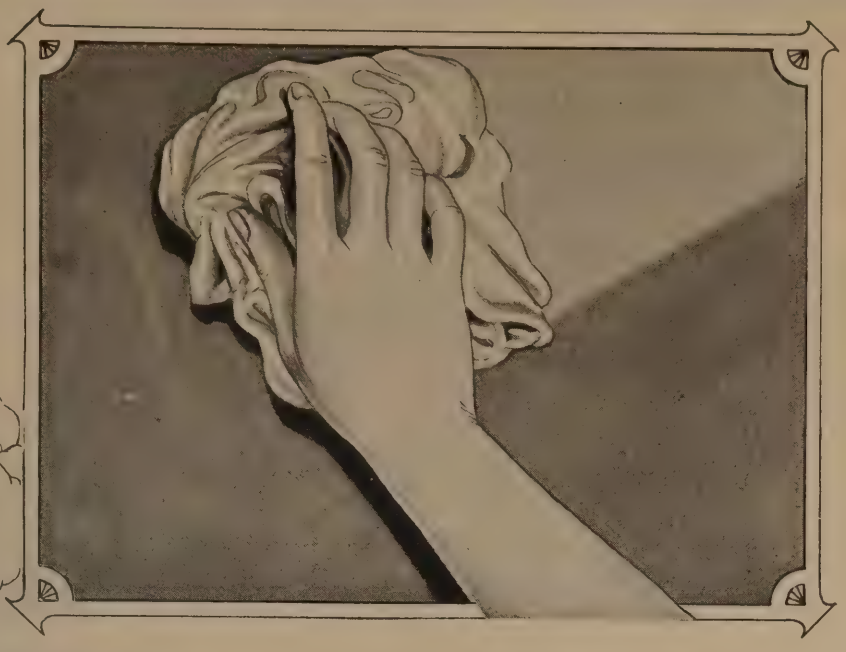

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Selected List of Manufacturers' Publications

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, DECORATORS, AND CONTRACTORS

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to *The Architectural Forum*, 383 Madison Ave., New York, or the manufacturer direct, in which case kindly mention this publication.

ACOUSTICS

Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.
Architectural Acoustics. Booklet. 6 x 9 in. 24 pp. Illustrated. Treatise on the correction of architectural acoustics in Churches, schools, hospitals, office buildings and other places.

ASH HOISTS—ELECTRIC AND HAND POWER

Gillis & Geoghegan, 544 West Broadway, New York, N. Y.
General Catalog. 8½ x 11 in. 20 pp. Fully illustrated. Contains specifications in two forms (with manufacturers' name and without). Detail ¼ in. scale for each telescopic model and special material-handling section.
The Man-Saving Load Lifter. 5⅞ x 8⅞ in. 8 pp. Illustrated. Describes G&G Telescopic and Non-Telescopic Hoists for handling material in factories.

BATHROOM ACCESSORIES

The Fairfacts Company, 234 West 14th Street, New York.
Catalog F., Architects' Edition. 8½ x 11 in. 32 pp. Illustrated. Describes and illustrates complete line of china fittings for bathrooms.
The Perfect Bathroom. Booklet. 3 x 9 in. 12 pp. Illustrated. Shows full line, Biltin and Projecting Types, installed. For architects and clients.

BOILERS—See Heating Equipment

BRICK

Acme Brick Company, Ft. Worth, Tex.
Series No. 1
Architectural designs rendered in Acme Brick. Booklet. 11 x 8½ in. Illustrated. A series of 48 photogravures showing architectural designs rendered in Acme brick. Illustrations show the various types of buildings erected in the Southwest in recent years. Sent free to architects applying on their office stationery.

American Face Brick Association, 1751 Peoples Life Bldg., Chicago, Ill.
The Story of Brick. Third Edition. Booklet. 7 x 9¼ in. 55 pp. Illustrated. Presents the merits of face brick from structural and artistic standpoints. Tables of comparative costs.
The Home of Beauty. Fourth Edition. Book. 8 x 10 in. 72 pp. Color plates. Presents fifty designs for small face brick houses submitted in national competition by architects. Text by Aymar Embury II, Architect. Price 50c.
"English Precedent for Modern Brickwork." A book of plates and measured drawings of Tudor and Gothic brickwork with a few recent variations of modern architects in the spirit of the old work. Price $2.00. 100 pp. Illustrated. 8½ x 11 inches.
Architectural Details in Brickwork. Series 1, 2, 3. 8½ x 11 in. Very useful to the architect or draftsman. Sent free to architects applying on their office stationery. To others $1.50.

BUILDING FINANCE

S. W. Straus & Co., 565 Fifth Ave., New York, N. Y.
The Straus Plan of finance is an attractively prepared booklet of 30 pages 6 x 9 inches in size, which summarizes the plan under which S. W. Straus & Co. finance modern office building, apartment house, residential hotel and other types of construction. It is illustrated with sketches of buildings throughout the United States which secure bond issues purchased by S. W. Straus & Co.

BUILDING STONE—See Stone, Building

BUILDING, STANDARD STEEL

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.
Truscon Standard Building Catalog. 8½ x 11 in. 48 pp. Contains data and illustrations.

BUILDING, STEEL PRODUCTS FOR

Massillon Steel Joist Company, The, Massillon, Ohio.
Massillon Bar Joists. Pamphlet, 8½ x 11 in. 8 pp. Illustrated. Pamphlet containing general information descriptive of Massillon Bar Joist Fireproof Floor Construction, with cuts showing methods of construction and photographs of installations. Detailed Dimensions, Safe Loading Tables, Details of Construction. Catalog. 8½ x 11 in. 32 pp. Illustrated.
Catalog contains complete detailed information about each Massillon Bar Joist Structural Unit.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.
Building a Permanent Home. Brochure 4 x 9 in. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.
Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.
Truscon Data Book. Catalog. 3½ x 6 in. 128 pp. Illustrated. Contains complete information with illustrations on Truscon reinforcing steel, steel windows, metal lath, standard buildings, concrete inserts, steel joists, pressed steel stamping and chemical products.

CARPETS, IMPORTED

Kent-Costikyan Trading Company, Inc., 484 Fifth Ave., New York, N. Y.
Rugs. Catalog. 9½ x 6½. 56 pp. Illustrated. Illustrates and describes an unusual collection of Oriental and Occidental rugs with stock list.

CEMENT

Carney Company, The, Mankato, Minn. Booklet. 8 x 10 in. 24 pp. Illustrated. Complete information on product, showing prominent buildings in which this cement has been used.
Booklet. 8½ x 11 in. 8 pp. Illustrated. Attractive circular describing late improvements in manufacturing Carney; cost comparisons, physical tests, specifications and testimonials. Contains four-page list of Carney-built buildings in all parts of the United States with architects' and contractors' names.

Louisville Cement Co., 315 Guthrie St., Louisville, Ky.
Brixment. Booklet. 7½ x 5 in. 16 pp. Illustrated. Brixment, what it is, what it does, how it does it and why.

Sandusky Cement Co., Dept. F, Cleveland, Ohio.
Medusa Waterproof White Portland Cement. Booklet, 8½ x 11 in. 32 pp. Illustrated.
Medusa Integral Waterproofing Powder and Paste. Booklet. 8½ x 11 in. 88 pp. and cover.

CONDUIT

National Metal Molding Co., 1113 Fulton Building, Pittsburgh, Pa.
Bulletin of all National Metal Molding Products. In correspondence folder. 9½ x 11⅓ in.
Sheraduct. Circular. 5 x 8 in. Illustrated.
Flaxsteel. Circular. 5 x 8 in. Illustrated.

CONSTRUCTION, FIREPROOF

Massillon Steel Joist Co., Massillon, Ohio.
Massillon Bar Joists. Brochure, 8¼ x 11 in. Illustrated. Full data regarding the steel used for construction of floors in fireproof buildings of various kinds.

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.
Standard Fire Proofing Bulletin 171. 8½ x 11 in. 32 pp. Illustrated. A treatise on fireproof floor construction.

National Steel Fabric Co., Union Trust Co., Pittsburgh, Pa.
Booklet Fireproofing Structural Steel, Booklet, 12 pp., 8½ x 11 ins. Illustrated. Deals fully with use of steel for fireproofing concrete, and of steel fabric for beam and column wrapping.

Northwestern Expanded Metal Co., 1234 Old Colony Building, Chicago, Ill.
Northwestern Expanded Metal Products. Booklet. 8½ x 10¾ in. 16 pp. Fully illustrated, and describes different products of this company, such as Kno-burn metal lath, 20th Century Corrugated. Plaster-Sava and Longspan lath channels, etc.

DAMPPROOFING

Philip Carey Co., Lockland, Cincinnati, Ohio.
Architects' Specifications for Carey Built-Up Roofing. Booklet. 8 x 10¾ in. 24 pp. Illustrated. Complete data to aid in specifying the different types of built-up roofing to suit the kind of roof construction to be covered.
Carey Built-Up Roofing for Modern School Buildings. Booklet. 8 x 10¾ in. 32 pp. Illustrated. A study of school buildings of a number of different kinds and the roofing materials adapted for each.

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York.
Specification Sheet, 8½ x 11 in. Descriptions and specifications of compounds for dampproofing interior and exterior surfaces.

DOORS AND TRIM, METAL

The American Brass Company, Waterbury, Conn.
Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc.

The Compound & Pyrono Door Company, St. Joseph, Mich.
Pyrono Handbook for Architects and Contractors. 8½ x 11 in. 16 pp. Contains full information regarding Pyrono Firepoof Veneered Doors and Trim, with complete details and specifications.
Pyrono details in sheet form for tracing.

Dahlstrom Metallic Door Company, 425 Buffalo St., Jamestown, N. Y.
Architectural Catalog. 10 x 14 in. 46 pp. 11 sections. Illustrated. Catalog showing the regular styles and types of hollow metal doors and interior trim. Various types of frames and other architectural shapes also illustrated.
Buildings as They Should Be. Booklet 7½ x 10½ in. A lavishly illustrated publication giving data and views of buildings of different kinds equipped with Dahlstrom doors and trim.

Richards-Wilcox Mfg. Co., Aurora, Ill.
Fire Doors and Hardware, Booklet. 8½ x 11 in. 64 pp. Illustrated. Describes entire line of tin-clad and corrugated fire doors, complete with automatic closers, track hangers and all the latest equipment—all approved and labeled by Underwriters' Laboratories.

DRAFTING MATERIALS

American Lead Pencil Company, 220 Fifth Ave., New York, N. Y.
VENUS Pencil in Mechanical Drafting. Booklet C20. 6 x 9 in. 16 pp. Illustrated. Describes the many possibilities of the VENUS for technical drawing.
Catalog, 3¾ x 8¾ in. 25 pp. Illustrated. Describes pencils, holders, erasers, etc.

DUMBWAITERS

Sedgwick Machine Works, 151 West 15th St., New York.
Catalog and Service Sheets. Standard specifications, plans and prices for various types, etc. 4¼ x 8¼ in. 60 pp. Illustrated.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 87*

ELECTRICAL EQUIPMENT

Frank Adam Electric Company, St. Louis, Missouri.
Catalog No. 32—1924 Panelboards—Steel Cabinets. 48 pp. 7¾ x 10½ in. Illustrates and describes Safety Type Sectionally Constructed Panelboards, together with complete catalog listings.

Frink, Inc., I. P., 24th St. and 10th Ave., New York, N. Y.
Catalog 415. 8½ x 11 in. 46 pp. Photographs and scaled cross-sections. Specialized bank lighting, screen and partition reflectors, double and single desk reflectors and Polaralite Signs.

The Edwin F. Guth Co., 2615 Washington Ave., St. Louis, Mo.
Brascolite Catalog No. 10. 10½ x 8 in. 28 pp. Illustrated. Catalog listing Brascolite fixtures in wide variety of plain and decorative types. Contains information of value in planning a lighting installation.
Bank and Office Building Catalog. 10½ x 8 in. 16 pp. Illustrated. Catalog listing a selected line of fixture equipment for application to all outlets in bank or office buildings or similar buildings.
Architectural Bulletins, Series of 5. 10½ x 8 in. 28-64-44-28-44 pp. Illustrated. A series of five bulletins, each treating upon the application of lighting to one particular class of service. Hospitals; Banks and Office Buildings; Schools, Colleges and Y. M. C. A. Buildings; Church and Fraternal Buildings; Commercial Service
Special Hospital Catalog. 10½ x 8 in. 9 pp. Illustrated. Illustrates a special selection of fixture equipment for hospital use including types suitable for all outlets.

Hart & Hegeman Mfg. Co., The, 342 Capitol Ave., Hartford, Conn.
The Line of Least Resistance. Catalog R. 10½ x 7⅞ in. 152 pp. Illustrated. Complete display of switches, sockets, accessories and wiring devices with brief description.
A new H & H Switch. Leaflet. 3½ x 6 in. 4 pp. Illustrated. Illustrates a new H & H composition base push switch of De Luxe quality.
Tumbler Switches. Booklet. 3½ x 6 in. 6 pp. Illustrated. Shows complete line of H & H Tumbler Switches.
Architects' Handbook of H & H Wiring Devices. Booklet 8½ x 11 in. 16 pp. "Written by an Architect for Architects."

The Holtzer-Cabot Electric Co., Amory St., Boston 19, Mass.
Signaling Systems for Hospitals. Brochure. 8½ x 11 in. 42 pp. Illustrated. Contains complete data covering Nurse's Call, Doctor's Call, "In" and "Out" Fire Alarm, Watchman's Clock and Telephone Systems.
Signaling Systems for Schools. Brochure, 8½ x 11 in. 47 pp. Illustrated. Contains complete data covering Telephone Systems, Program Bells, Fire-Alarm Systems, Low Tension Power Plant and Laboratory Equipment.

Kohler Co., Kohler, Wis.
Principle and Proof. Booklet. 48 pp. Illustrated. Describes a standard voltage automatic electric power and light plant for isolated homes, for emergency auxiliary or permanent lighting in stores, theaters, churches and schools.

Pick & Company, Albert, 208 West Randolph St., Chicago, Ill.
School Cafeterias. Booklet. 9 x 6 in. Illustrated. The design and equipment of school cafeterias with photographs of installation and plans for standardized outfits.
Kitchen Equipment. Booklet. 9 x 6 in. Illustrated. Photographs and descriptions of Hotel, Club and Hospital kitchens with treatise on plans and equipment of efficient kitchens.
Electric Kitchen Equipment. Booklet. 8½ x 11½ in. Illustrated. Photographs and descriptions of PIX "Master-Made" ranges, ovens, etc., for Hotels and Restaurants.

Simplex Wire & Cable Co., 201 Devonshire St., Boston, Mass.
Simplex Manual Catalog and Reference Book, 6¼ x 4¼ in. 92 pp. Contains in addition to information regarding Simplex products, tables and data for the ready reference of architects, electrical engineers and contractors.
Specification No. 2053. For Simcore Wires and Cables. Various sizes of Conductor-Rubber Insulation.

Western Electric Co., 195 Broadway, New York, N. Y.
Western Electric Inter-Phones for Apartment Houses. Booklet. 5¼ x 6¾ in. 16 pp. Illustrated. Illustrates and describes use of Inter-Phones in Apartment Houses.
Installing and Maintaining Western Electric Inter-Phones. In addition to giving general information on layout of system, details are supplied on individual Inter-Phone Systems, listing battery and wiring requirements.

ELEVATORS

A. B. See Elevator Company, Inc., 52 Vesey Street, New York. N. Y.
Current catalogue illustrated 8½ x 11 in. Engineering information and layout form for all types of electric elevators.

Elevator Supplies Co., Inc., Hoboken, N. J.
Lubricators for Elevator Guide Rails. Folder 8½ x 11 in. Form S. A.-435.
A Brief Catalog. Brochure 8½ x 11 in. 16 pp.
Valuable for anyone interested in elevators.

Otis Elevator Company, 260 Eleventh Ave., New York, N. Y.
Otis Push Button Controlled Elevators. Descriptive leaflets. 8½ x 11 in. Illustrated. Full details of machines, motors and controllers for these types.
Otis Geared and Gearless Traction Elevators of All Types. Descriptive leaflets. 8½ x 11 in. Illustrated. Full details of machines, motors and controllers for these types.
Escalators. Booklet. 8½ x 11 in. 22 pp. Illustrated. Describes use of escalators in subways, department stores, theaters and industrial buildings. Also includes elevators and dock elevators.

Richards-Wilcox Mfg. Co., Aurora, Ill.
Elevators. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes complete line of "Ideal" elevator door hardware and checking devices, also automatic safety devices.

Sedgwick Machine Works, 151 West 15th St., New York, N. Y.
Catalog and descriptive pamphlets, 4¼ x 8¾ in. 70 pp. Illustrated. Descriptive pamphlets on hand power freight elevators, sidewalk elevators, automobile elevators, etc.

ELEVATORS—Continued

FENCES

The Stewart Iron Works Company, Cincinnati, Ohio.
Book of Designs "C," 9 x 12 in. 80 pp. Illustrated. Book of designs illustrated from photographs of ornamental iron fence and entrance gates erected by us. Valuable to architects.

FIRE DOORS—See Doors, Windows and Trim, Metal

FIREPROOFING—See also Construction, Fireproof

The General Fireproofing Company, Youngstown, Ohio.
Fireproofing Handbook, 64 pp. 8½ x 11 in. Illustrated. Gives methods of construction, specifications, data on Herringbone metal lath, steel tile, Trussit solid partitions, steel lumber, self-centering formless concrete construction.

National Steel Fabric Co., Union Trust Co., Pittsburgh, Pa.
Booklet Fireproofing Structural Steel. Booklet. 12 pp. 8½ x 11 ins. Illustrated. Deals fully with use of steel for fireproofing concrete, and of steel fabric for beam and column wrapping.

FLOOR HARDENERS (CHEMICAL)

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York, N. Y.
Lapidolith, the liquid chemical hardener. Complete sets of specifications for every building type in which concrete floors are used, with descriptions and results of tests.

FLOORING

Armstrong Cork & Insulation Co., 132 24th St., Pittsburgh, Pa.
Linotile Floors for Public and Semi-Public Buildings, 7½ x 10⅜ in. 36 pp.
Linotile Floors for Residences. 7½ x 10⅜ in. 32 pp.
Armstrong's Cork Tile. Revised Edition. Booklet. 24 pp. 5 x 7 in. Illustrated in color. Contains complete specifications.

Armstrong Cork & Insulation Co., Pittsburgh, Pa.
Armstrong's Cork Tile Floors. Booklet, 30 pp. 7¾ x 10½ in. An illustrated work on cork flooring.

Armstrong Cork Co. (Linoleum Division), Lancaster, Pa.
Armstrong's Linoleum Floors. Catalog. 8¼ x 11 in. 36 pp. Color plates. A technical treatise on linoleum, including table of gauges and weights and specifications for installing linoleum floors.
Decorative Linoleum Floors. Portfolio of Color Plates. 11¼ x 15 in. 16 pp. Color plates.
Armstrong's Linoleum Pattern Book, 1925. Catalog. 3½ x 6 in. 200 pp. Color Plates. Reproduction in color of all patterns of linoleum and cork carpet in the Armstrong line.
Quality Sample Books. Two books, 3½ x 5¾ in. Showing all gauges and thicknesses in the Armstrong line of linoleums.
Detailed Directions for Laying and Caring for Linoleum. Handbook, 5 x 7 in. 48 pp. Instructions for linoleum layers and others interested in learning most satisfactory methods of laying and taking care of linoleum.
Business Floors. Booklet. 6 x 9 in. 48 pp. Illustrated in color. Explains use of linoleum for offices, stores, etc., with reproductions in color of suitable patterns, also specifications and instructions for laying.

Bonded Floors Company, Inc. Division of Congoleum-Nairn, Inc., 1421 Chestnut st., Philadelphia, Pa.
The "Distinctive Floors" Series. Four pamphlets 7¾ x 10¾ in. Illustrated in full color, each describing and picturing a resilient floor material, as follows:—
Battleship Linoleum. Explains the advantages and proper use of this durable, economical material.
Treadlite Tile. Shows a variety of colors and patterns of this adaptable cork composition flooring.
Rubber Tile. A description and color photographs of this luxurious floor of colorful, marble-like, resilient tile.
Natural Cork Tile. Description and color plates of this super-quiet, resilient floor.
Linoleum Specifications. Folder, 8¼ x 11 in. 8 pp. Standard specifications for installation of battleship linoleum, with detailed description and explanation. Also includes copy of Federal Government Specification No. 209.
Practical Working Specifications for installing battleship linoleum treadlite tile, rubber tile and cork tile.

Carter Bloxonend Flooring Co., Keith & Perry Bldg., Kansas City, Mo.
Bloxonend Flooring. Booklet 3¼ x 6¼ in. 20 pp. Illustrated. Describes uses and adaptability of Bloxonend Flooring to concrete, wood or steel construction, and advantages over loose wood blocks.
File Folder. 9⅜ x 8⅝ in. For use in connection with A. I. A. system of filing. Contains detailed information on Boxonend Flooring in condensed, loose-leaf form for specification writer and drafting room. Literature embodied in folder includes standard Specification Sheet covering the use of Boxonend in general industrial service and Supplementary Specification Sheet No. 1, which gives detailed description and explanation of an approved method for installing Bloxonend in gymnasiums, armories, drill rooms and similar locations where maximum resiliency is required.

Duraflex Company, Inc., 11 Pleasant Street, Baltimore, Md.
Why They Used It in One of Boston's Finest Buildings.
Typical of Character of One of the 13 Original States.
Illustrated 4-page brochures, 5¼ x 8¼ in., giving data on "Duraflex" floors.
Permanent, Easy Tread Flooring. Folder. 4 pp. 8½ x 11 in. on floor covering material.
Specifications for Sub-Floors for "Duraflex." Folder. 11 pp. 8½ x 11 in. on base for laying "Duraflex."
Test of Floorings. Folder. 2 pp. Report of Flooring Committee of American Hospital Association.

Galassi Company, 153 East 38th St., New York, N. Y.
Suggesting a Standard Specification for Terrazzo Work. Booklet. Specifications for the use of terrazzo.

Muller Co., Franklyn R., Waukegan, Ill.
Asbestone Composition Flooring. Circular. 8½ x 11 in. Descriptions and Specifications.

ANACONDA

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THROUGH THE USE OF ANACONDA ARCHITECTURAL BRONZE EXTRUDED SHAPES, MESSRS. STARRETT AND VAN VLECK SECURED FAITHFUL REPRODUCTIONS OF THEIR DESIGNS IN THE ENTRANCES AND DISPLAY WINDOWS OF SAKS & COMPANY'S NEW FIFTH AVE. STORE, NEW YORK.

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In Canada: ANACONDA AMERICAN BRASS LIMITED, NEW TORONTO ONTARIO

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 88*

FLOORING—Continued

Norton Company, Worcester, Mass.
Filing Folder. 8½ x 11¾ in. 27 pp. Illustrated with drawings. Specification data for architects.

Ritter Lumber Co., W. M., Columbus, Ohio.
Ritter Oak Flooring, brochure 5 x 7 in. 31 pp. Illustrated. Excellent data on floors of different kinds and of various woods.
Beauty Begins in the Forest.
Large illustrated folder on modern flooring.

Rodd Company, The, Century Bldg., Pittsburgh, Pa.
Redwood Block Floor. Booklet. 4 x 9 in. Illustrated. Contains technical information on Rodd Floors of California Redwood Blocks. Also specifications.

U. S. Gypsum Co., Chicago.
Pyrobar Floor Tile. Folder. 8¼ x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

FOLDING PARTITIONS

Cur-ti-tion Company, 1991 East 66th Street, Cleveland, Ohio.
Double folding acoustical partitions. Four-page folder, 8½ x 11 in. Illustrated. The problem of the churches solved by Cur-ti-tion acoustical folding partitions. Describes the uses of Cur-ti-tion partitions in schools and churches. Another folder describing stage curtains is also published by this company.

Wilson Corporation, J. G., 11 East 36th Street, New York, N. Y.
Sectionfold and Rolling Partitions and Hygienic School Wardrobes. Catalog No. 37. Booklet 8½ x 11 in. 40 pp. Illustrated. Describes the uses of rolling and sectional partitions, particularly in schools and churches. Also the installation of Wilson school wardrobes.

FURNACES—See Heating Equipment.

FURNITURE

Allen, Louis L., 521 Madison Ave., New York, N. Y.
Booklet. 5 x 7½ in. Illustrated. Issued quarterly, listing many antique pieces of furniture, old oak and pine paneling and garden figures; fountains, bird baths, sundials, etc.

American Seating Co., 14 E. Jackson Blvd., Chicago, Ill.
Ars Ecclesiastica Booklet. 6 x 9 in. 48 pp. Illustrations of church fitments in carved wood.
Theater Chairs. Booklet. 6 x 9 in. 48 pp. Illustrations of theater chairs.

Fain Manufacturing Company, Norfolk, Virginia.
The Fain Fold Away Dining Room. Booklet. 4 pp. 8½ x 11 in. Illustrated. Information to architects and builders on new folding devices with architect's specifications and views of construction. Concise description of merits, use and price.

Kensington Mfg. Company, 41 West 45th St., New York, N. Y.
Photographs and full description of hand-made furniture in all the period styles, furnished in response to a specific inquiry. Illustrated booklet indicative of the scope, character and decorative quality of Kensington furniture mailed on request.

White Door Bed Company, The, 130 North Wells Street, Chicago, Ill.
Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes and illustrates the use of "White" Door Bed and other space-saving devices.

GARDEN ACCESSORIES

Davey Tree Expert Company, The, 907 Elm St., Kent, Ohio.
When Your Trees Need The Tree Surgeon. Booklet. 16 pp. 8 x 9¼ in. Illustrated. Lists and explains a number of serious tree troubles of common occurrence; contrasts the scientific methods used by properly trained and conscientious men to remedy these troubles with the work of unscrupulous or untrained men.

GLASS CONSTRUCTION

Mississippi Wire Glass, 220 Fifth Avenue, New York.
Mississippi Wire Glass. Catalog. 3⅞ x 8½ in. 32 pp. Illustrated. Covers the complete line.

Pittsburgh Plate Glass Co., Pittsburgh.
Glass, Paints, Varnishes and Brushes. Book. 9 x 11 in. 190 pp. An extremely fine treatise on the history, manufacture, and use of these commodities.

Plate Glass Mfrs. of America. First National Bank Bldg., Pittsburgh, Pa.
Plate Glass. Booklet. 5¾ x 9¼ in. 12 pp. Describes manufacture and use of plate glass, with sizes.

GRANITE—See Stone, Building

HARDWARE

Cutler Mail Chute Company, Rochester, N. Y.
Cutler Mail Chute Model F. Booklet, 4 x 9¼ in. 8 pp. Illustrated.

McKinney Mfg. Co., Pittsburgh, Pa.
McKinney Complete Garage Hardware Sets. Catalog. 6¾ x 10 in. 20 pp. Illustrated. Describes full line of complete garage hardware sets for all kinds of entrances, with views of typical entrances and sketches.
McKinney Hinges and Butts. General Catalog. 6¾ x 10 in. Illustrates and describes complete line of McKinney wrought builders' hardware products, including hinges, butts, door hangers and track, latches, garage hardware and specialties.

Richards-Wilcox Mfg. Co., Aurora, Ill.
Distinctive Garage Door Hardware. Booklet. 8½ x 11 in. 65 pp. Illustrated. Complete information accompanied by data and illustrations on different kinds of garage door hardware.

Sargent & Company, New Haven, Conn.
Sargent Locks and Hardware. Architects' Edition, 9 x 12 in. 762 pp. Illustrated. The latest complete catalog of Locks and Hardware.
Details to Which Standard Hardware Can Be Applied. Booklet. 6 pp. 9 x 12 in. Illustrated. Treats with diagrams, portions of doors and windows to which hardware can be applied.

Vonnegut Hardware Co., Indianapolis, Ind.
Von Duprin Self-Releasing Fire Exit Devices. Catalog 12F. 8 x 11 in. 41 pp. Illustrated.
Saving Lives. Booklet. 3¼ x 6 in. 16 pp. Illustrated. A brief outline why Self-Releasing Fire Exit Devices should be used.

HEATING EQUIPMENT

Bryant Heater & Mfg. Co., The, 962 East 72nd St., Cleveland, O.
Hand Book on Water Heating by Gas. 8½ x 11 in. 16 pp. Illustrated. Bryant Gas Boilers. Bulletin 309, for AIA File No. 29 D2. Contains valuable information on hot water, steam and vapor heating; data to determine quickly the size of heating plant for any building; also dimensions, weights, fittings furnished and other data of interest. Other descriptive literature available. Comprehensive handbook in preparation.
Hand Book on House Heating by Gas. 8½ x 11 in. 8 pp. Illustrated. Bryant Automatic Hot Water Storage Systems. Bulletin 308, for AIA File No. 30 C1. Contains complete information on water heating systems, weights, dimensions, etc. Other descriptive material available. Comprehensive handbook in preparation.

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.
Gasteam. Catalog. 6 x 9 in. 16 pp. Illustrated. New radiator using gas for fuel.

C. A. Dunham Company, 230 East Ohio Street, Chicago, Ill.
Dunham Radiator Trap. Bulletin 101. 8 x 11 in. 12 pp. Illustrated. Explains working of this detail of heating apparatus.
Dunham Packless Radiator Valves. Bulletin 104. 8 x 11 in. 8 pp. Illustrated. A valuable brochure on valves.
Dunham Return Heating System. Bulletin 109. 8 x 11 in. Illustrated. Covers the use of heating apparatus of this kind.
Dunham Vacuum Heating System. Bulletin 110. 8 x 11 in. 12 pp. Illustrated.

Excelso Specialty Works, 119 Clinton St., Buffalo, N. Y.
Excelso Water Heater. Booklet. 12 pp. 3 x 6 in. Illustrated. Describing the new Excelso method of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)

The Fulton Company, Knoxville, Tenn.
Sylphon Temperature Regulators. Bulletin T-103. 8½ x 11 in. 16 pp. Complete data on Sylphon temperature regulators for air and liquids. Catalog 100, complete line Sylphon Heating Specialties.
Damper Regulators. Air and Vent Valves. Catalog No. 100. 3¾ x 6¼ in. Sylphon Damper Regulators for steam, hot water and vapor systems. Sylphon Air and Vent Valves.

Illinois Engineering Co., Racine Ave., at 21st St., Chicago, Ill.
Vapor Heat Bulletin 21. 8½ x 11 in. 32 pp. Illustrated. Contains new and original data on Vapor Heating. Rules for computing radiation, pipe sizes, radiator tappings. Steam table showing temperature of steam and vapor at various pressures, also description of Illinois Vapor Specialties.

Johnson Service Company, 149 Michigan St., Milwaukee, Wis.
Regulation of Temperature and Humidity. Booklet. 11¼ x 8½ in. 64 pp. Illustrated. Describes Johnson system of pneumatic, automatic regulation of temperature and humidity, and illustrates thermostats, valves, air compressors, dampers and other parts.
Johnson Electric Thermostats, Valves and Controllers. Booklet. 6⅛ x 3½ in. 24 pp. Illustrated. Excellent plates showing electric thermostats and controllers.

Kelsey Heating Company, James St., Syracuse, N. Y.
Booklet No. 5, 4 x 9 in. 32 pp. Illustrated. A dealers' booklet showing the Kelsey Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended and shows the mechanical and gravity systems of heating homes, churches and schools.
Monroe Pipeless Booklet. 4½ x 8 in. 20 pp. Illustrated.
Monroe Tubular Heater. Booklet. 4½ x 8 in. 20 pp. Illustrated. General Booklet giving capacities, dimensions, weights, etc.
Syracuse Pipeless Booklet. 4½ x 8 in. 12 pp. Illustrated. General Booklet giving sizes and capacities.

Kewanee Boiler Co., Kewanee, Ill.
Kewanee on the Job. Catalog. 8½ x 11 in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.
Catalog No. 78, 6 x 9 in. Illustrated. Describes Kewanee Firebox Boilers with specifications and setting plans.
Catalog No. 79. 6 x 9 in. Illustrated. Describes Kewanee power boilers and smokeless tubular boilers with specifications.

Nash Engineering Company, South Norwalk, Conn.
No. 37. Devoted to Jennings Hytor Return Line Vacuum Heating Pumps, electrically driven, and supplied in standard sizes up to 300,000 square feet equivalent direct radiation.
No. 16. Dealing with Jennings Hytor Air Line Heating Pumps.
No. 17. Describing Jennings Hytor Condensation Pumps, sizes up to 70,000 square feet equivalent direct radiation.
No. 25. Illustrating Jennings Return Line Vacuum Heating Pumps. Size M, for equivalent direct radiation up to 5,000 square feet.

Ruud Manufacturing Company, Pittsburgh, Pa.
Architects' Specification Folder. 9 x 11¼ in. Complete specifications covering different types of gas water heaters. Conforms to A. I. A. filing system.

Trane Co., The, La Crosse, Wis.
Bulletin 14. 16 pp. 8½ x 10⅝ in. Cover the complete line of Trane Heating Specialties, including Trane Bellows Traps, and Trane Bellows Packless Valves.
Bulletin 20. 24 pp. 8½ x 10⅝ in. Explains in detail the operation and construction of Trane Condensation, Vacuum, Booster, Circulating, and similar pumps.

Utica Heater Company, Utica, N. Y.
Imperial Round and Square Boilers and Supplies. Catalog. 3½ x 6½ in. Gives complete data on small heaters.
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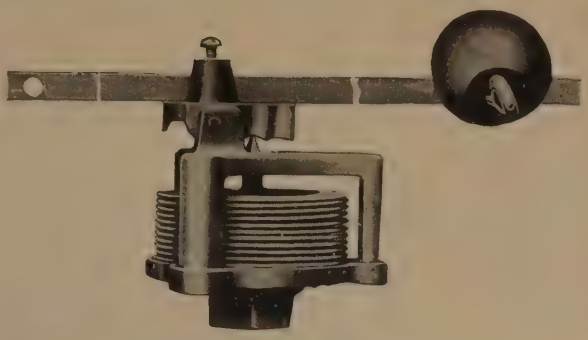

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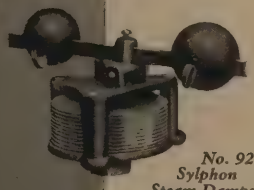

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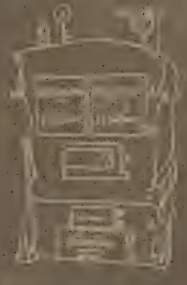

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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 90*

HEATING EQUIPMENT—Continued

Utica Imperial SUPER-SMOKELESS Boiler. Catalog. 8½ x 11 in. Consists of the following seven bulletins, either loose or bound together: (1) School Heating Bulletin. (2) Public Building Bulletin. (3) Theater Heating Bulletin. (4) Churches and Religious Institutions. (5) Residences, Apartments and Hotels. (6) Offices, Industrial Buildings and Garages. (7) Technical Bulletin describing patented Bunsen Burner design and construction of the SUPER-SMOKELESS BOILER, which burns the cheapest grades of soft coal smokelessly and operates equally well with hard coal, coke or fuel oil.

HEAT REGULATORS—See Heating Equipment

HEATING AND VENTILATING

Thatcher Furnace Co., 39-41 St. Francis St., Newark, N. J.

Thatcher Heating and A Few Installations, 25 pp. 6 x 9 in. Illustrated. Contains photos of various types of buildings in which Thatcher Heaters are installed together with cuts and description of Thatcher Heaters.

History of Heat. 15 pp. 8 x 5 in. Illustrated. Tracing the evolution of heat from its earliest stages.

United States Radiator Corporation, Detroit, Mich.

The Complete Line Catalog. 6⅜ x 3¾ in. 270 pp. Illustrated. Giving complete information and engineering data on Capital and Winchester Boilers.

HOISTS—See Ash Hoists

HOLLOW TILE—See Tile, Hollow

HOSPITAL EQUIPMENT

The International Nickel Company, 67 Wall St., New York, N. Y.

Hospital Applications of Monel Metal. Booklet. 8½ x 11½ in. 16 pp. Illustrated. Gives types of equipment in which Monel Metal is used, reasons for its adoption, with sources of such equipment.

The Kny-Scheerer Corporation of America, 119 Seventh Ave., New York.

Hospital Equipment, 16th Edition. 7¼ x 10½ in. 232 pp. Illustrated. Complete description of Hospital and Surgical Furniture, Hospital Appliances including Operating Tables, Cabinets, Sterilizers for Water, Dressing and Instruments, also Hydrotherapeutic Apparatus.

Surgical Sundries. Second Edition. Booklet. 7⅜ x 10½ in. 48 pp. Illustrated. A complete line of glassware, enamelware, rubber goods, restraint apparatus, instrument sterilizers, sputum cups, wheel chairs and sick room comforts.

Electro-Medical. 25th Edition. Booklet. 7¼ x 10½ in. 160 pp. Illustrated. A complete line of Albee Bone Sets, Apparatus for AC and DC, Cystocopes, Heat Magnets, Vibrators, Compressors, Electric Light Baths, High Frequency Apparatus and X-Ray Apparatus and Accessories.

INCINERATORS

The Kerner Incinerator Company, 1029 Chestnut St., Milwaukee, Wis.

The Kernerator. Booklet. 5½ x 9¼ in. 40 pp. Illustrated. Describes principle and design of the Kernerator, guarantee and service, also gives illustrations of buildings where it has been installed, and testimonials.

Sanitary Elimination of Household Waste. Booklet. 4 x 9 in. 16 pp. Illustrated. Shows process, installations and advantages of the Kernerator.

Sanitary Disposal of Waste in Hospitals. Booklet. 4 x 9 in. 12 pp. Illustrated. Shows how this necessary part of hospital service can be taken care of by the Kernerator.

INSULATION

Armstrong Cork & Insulation Co., Pittsburgh, Pa.

Corkboard Insulation. Brochure. 6¼ x 9¼ in. Illustrated. Fully discusses properties of corkboard and its uses in insulation of cold storage rooms, refrigerators, residences, apartment houses.

Armstrong Cork & Insulation Co., Pittsburgh, Pa.

Nonpareil Cork Covering. Booklet 48 pp. 7½ x 10½ in. Illustrated. Complete treatment of cold pipe installation.

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Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.

Specifications and Working Details. Booklet. 7¾ x 10½ in. Illustrated. Contains plainly written instructions for the use of stucco, stucco base, plaster base and insulation base.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Philip Carey Co., The, Cincinnati, Ohio.

Carey Asbestos and Magnesia Products. Catalog. 6 x 9 in. 72 pp. Illustrated.

Celotex Company, The, 645 N. Michigan Ave., Chicago, Ill.

The Hidden Comfort of Costly Homes. Booklet 8½ x 11 in.

Celotex Specifications. Booklet 8½ x 11 in.

Johns-Manville, Inc., Madison Ave. and 41st St., New York, N. Y.

Johns-Manville Service to Power Users. Catalog. 8½ x 11 in. 150 pp. Illustrated. Contains valuable data on all forms of insulation, packages, steam traps, high temperature cements, brake locks and linings, also general technical data.

United States Mineral Wool Co., 280 Madison Ave., New York.

The Uses of Mineral Wool in Architecture. Booklet. 5¼ x 6⅝ in. 24 pp. Illustrated. Describes properties of mineral wool as insulation against heat, frost, sound. Specifications and section drawing for use as a fireproofing. Rules for estimate and cost.

KITCHEN EQUIPMENT

Colt's Patent Fire Arms Mfg. Company, Hartford, Conn.

AUTOSAN Dish and Silver Cleaning Machines. Booklets. 6 x 9 in. Describing rotary table type and conveyor type machines.

KITCHEN EQUIPMENT—Continued

Standard Gas Equipment Corporation, 18-20 East 41st Street, New York, N. Y.

VULCAN Gas Ranges and Appliances. Booklet. 5 x 8 in. 50 pp. Illustrated. Describes complete line, including VULCAN SMOOTH TOP Compact Cabinet Gas Ranges for kitchens in the home.

VULCAN Gas Equipment for Hotels, Hospitals, Restaurants, etc. Booklet. 5 x 8 in. 45 pp. Illustrated. Equipment for heavy-duty cooking requirements, with information of value to architects in planning kitchens.

The International Nickel Company, 67 Wall St., New York, N. Y.

Hotels, Restaurants and Cafeteria Applications of Monel Metal. Booklet. 8½ x 11 in. 32 pp. Illustrated. Gives types of equipment in which Monel Metal is used, with service data and sources of equipment.

Pick & Company, Albert, 208 W. Randolph St., Chicago, Ill.

School Cafeteria. Portfolio. 17 x 11 in. 44 pp. Illustrated. An exhaustive study of the problems of school feeding, with copious illustrations and blue prints. Very valuable to the architect.

School Cafeterias. Booklet. 9 x 6 in. Illustrated. The design and equipment of school cafeterias with photographs of installation and plans for standardized outfits.

Kitchen Equipment. Booklet. 9 x 6 in. Illustrated. Photographs and descriptions of Hotel, Club and Hospital kitchens with treatise on plans and equipment of efficient kitchens.

Electric Kitchen Equipment. Booklet. 8½ x 11½ in. Illustrated. Photographs and descriptions of PIX "Master-Made" ranges, ovens, etc., for Hotels and Restaurants.

Hotel, Apartment Building, Club and Institution Installations. Portfolio. 17 x 11 in. 100 pp. Shows, mostly by plates, how the Albert Pick Company equips hotels completely from top to bottom.

Equipment for Cafeterias, Lunch Rooms, Restaurants, and Dining Rooms. Portfolio. 17 x 11 in. 86 pp. Illustrated. The last word in Cafeteria equipment to meet all requirements.

Thatcher Furnace Co., 39-41 St. Francis St., Newark, N. J.

Range with Personality. 15 pp. 8 x 5 in. Illustrated. Explains the famous Thatcher "Twin-Fire" combination coal and gas range.

Thatcher is the Heater for that Building. 8 pp. 8 x 9 in. Illustrated. Contains cuts, dimensions, and descriptions of Thatcher Heaters for architects' use.

LABORATORY EQUIPMENT

Kewaunee Manufacturing Company, 141 Lincoln St., Kewaunee, Wis.

Kewaunee Book of Laboratory Furniture. Catalog. 7 x 10 in. 408 pp. Illustrated. Science and Vocational Laboratory Furniture for schools, colleges, technical institutes, hospitals, etc., including floor plans, illustrations of buildings and equipped laboratories, illustrations of equipment engineering data for mechanical ventilation and illustrations of special plumbing fixtures for laboratory use. A supplement is also issued for this work.

LANTERNS

Todhunter, Arthur, 414 Madison Ave., New York.

Hand Wrought Lanterns. Booklet. 5¼ x 6¼ in. 20 pp. Illustrated in Black and White. With price list. Lanterns appropriate for exterior and interior use, designed from old models and meeting the requirements of modern lighting.

LATH, METAL AND REINFORCING

The General Fireproofing Company, Youngstown, Ohio.

Herringbone Metal Lath Handbook. 8½ x 11 in. 32 pp. Illustrated. Standard specifications for Cement Stucco on Herringbone.

Rigid Metal Lath and interior plastering.

Milwaukee Corrugating Co., Milwaukee, Wis.

The Milcor Manual. Booklet 8½ x 11 in. 64 pp. Illustrated. Covers Milcor methods and materials, metal lath, corner beads, steel domes, channels, etc.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.

Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.

Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

Northwestern Expanded Metal Co., 1234 Old Colony Building, Chicago, Ill.

Northwestern Expanded Metal Products. Booklet. 8½ x 10¾ in. 16 pp. Fully illustrated, and describes different products of this company, such as Kno-burn metal lath, 20th Century Corrugated, Plaster-Sava and Longspan lath channels, etc.

LAUNDRY CHUTES

The Pfaudler Company, 217 Cutler Building, Rochester, N. Y.

Pfaudler Glass-Lined Steel Laundry Chutes. Booklet. 5⅛ x 7⅛ in. 16 pp. Illustrated. A beautifully printed brochure describing in detail with architects' specifications THE PFAUDLER GLASS LINED STEEL LAUNDRY CHUTES. Contains views of installations and list of representative examples.

LIGHTING EQUIPMENT

Curtis Lighting, Inc., Chicago, Ill.

Catalog 393. 8 x 10 in. 34 pp. Illustrated. Describes and illustrates X-Ray reflectors for show cases and windows, and lighting fixtures for interior illumination of stores.

MAIL CHUTES

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet. 4 x 9¼ in. 8 pp. Illustrated.

MANTELS

Arthur Todhunter, 414 Madison Avenue, New York, N. Y.

Georgian Mantels. New Booklet. 24 pp. 5¼ x 6¼ in. A fully illustrated brochure on eighteenth century mantels. Folders give prices of mantels and illustrations and prices of fireplace equipment.

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Armstrong's Nonpareil Corkboard Insulation

for Commercial and Industrial Building Roofs

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 92*

MARBLE

The Georgia Marble Company, Tate, Ga. New York Office, 1328 Broadway.
Why Georgia Marble is Better. Booklet. 3⅜ x 6 in. Gives analysis, physical qualities, comparison of absorption with granite, opinions of authorities, etc.
Convincing Proof. Booklet. 3⅜ x 6 in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.

METAL LATH—See Lath, Metal and Reinforcing

METALS

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.
Reference Book. Pocket Ed. 2½ x 4½ in. 168 pp. Illustrated. Covers the complete line of Sheet and Tin Mill Products.
Apollo and Apollo-Keystone Galvanized Sheets. Catalog. 8½ x 11 in. 20 pp. Illustrated.
Research on the Corrosion Resistance of Copper Steel. Booklet. 8½ x 11 in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.

Chase Metal Works, Waterbury, Conn.
How to Order Brass. Booklet. 8½ x 5½ in. Illustrated. Tells just how to order brass—about alloys, tempers, tolerances most suitable for various uses. Warns against the usual mistakes and troubles in ordering. Contains complete tables of alloys, tempers, tolerances, uses, etc.
Chase Diamond Booklet. 11⅞ x 9 in. 8-16 pp. Illustrated. Periodical house organ issued once a month or so. Contains articles, pictures, news items of interest to customers, employes and brass industry in general. Ask to be put on the mailing list.

The International Nickel Company, 67 Wall St., New York, N. Y.
The Choice of a Metal. Booklet. 6¼ x 3¼ in. 16 pp. Illustrated. Monel Metal—its qualities, use and commercial forms, briefly described.

METAL TRIM—See Doors and Trim, Metal

MILL WORK—See also Wood

Curtis Companies Service Bureau, Clinton, Iowa.
Architectural Interior and Exterior Woodwork. Standardized. Book. 9 x 11½ in. 240 pp. Illustrated. This is an Architects' Edition of the complete catalog of Curtis Woodwork, as designed by Trowbridge & Ackerman. Contains many color plates.
Better Built Homes, Vols. XV-XVIII incl. Booklet. 9 x 12 in. 40 pp. Illustrated. Designs for houses of five to eight rooms, respectively, in several authentic types, by Trowbridge & Ackerman, architects for the Curtis Companies.
Curtis Details. Booklet. 19½ x 23½ in. 20 pp. Illustrated. Complete details of all items of Curtis woodwork, for the use of architects.

Roddis Lumber & Veneer Company, Marshfield, Wis.
Roddis Doorman. Booklet. 10¼ x 7¼ in. 12 pp. Illustrated. Describes and illustrates the use of Roddis Doors for residences, clubs, hotels, etc.

Hartmann-Saunders Company, 2155 Elston Ave., Chicago, Ill.
Column Catalog. 7½ x 10 in. 48 pp. Illustrated. Contains prices on columns 6 to 36 in. diameter, various designs and illustrations of columns and installations.
The Pergola Catalog. 7½ x 10 in. 64 pp. Illustrated. Contains illustrations of pergola lattices, garden furniture in wood and cement, garden accessories.

MORTAR COLORS

Clinton Metallic Paint Co., Clinton, N. Y.
Clinton Mortar Colors. Folder. 8½ x 11 in. 4 pp. Illustrated in color, gives full information concerning Clinton Mortar Colors with specific instructions for using them.
Color Card. 6½ x 3¼ in. Illustrates in color the ten shades in which Clinton Mortar Colors are manufactured.

MOTION PICTURE APPARATUS

Nicholas Power Company, 88 Gold Street, New York
Power's Projectors and Accessories.
An excellent brochure on the subject, 6¾ x 8¾ in. 36 pp.

Precision Machine Co., Inc., 317 E. 34th Street, New York.
Make Your Policy Better Projection. Description of the Simplex Projector. Booklet. 3¼ x 6 in.
Your Insurance For Good Projection.
Valuable pamphlet on motion picture machinery.

OFFICE SUPPLIES

Charles M. Higgins & Co., 271 Ninth St., Brooklyn, N. Y.
Descriptive Catalog. 3½ x 5½ in. 27 pp. Illustrated. Contains description and prices of Higgins Inks and Adhesives, color card illustrating various colors of the drawing inks supplied separate, size 3½ x 6¼.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

Cabot, Inc., Samuel, Boston, Mass.
Cabot's Creosote Stains. Booklet. 4 x 8½ in. 16 pp. Illustrated.

Eagle-Picher Lead Company, The, 208 S. La Salle St., Chicago, Ill.
Specifications for Painting Structural Steel and Iron. Booklet. 9½ x 11½ in. 7 pp. Not illustrated. A set of specifications which embody the latest development in this field as revealed by the research department of The Eagle-Picher Lead Company in the light of their eighty-one years' experience, enclosd in folder 13 x 2 in., ready for filing.
Fighting Rust with Sublimed Blue Lead. Book. 80 pp. Illustrated. 5½ x 8½ in. An excellent addition to one's technical library, well bound in a stiff cover. An assemblage of scientific facts concerning the theory of corrosion of iron and steel and the prevention of rust with Sublimed Blue Lead.
Chemical Analysis of Lead and Its Compounds. Book. 5½ x 8½ in. 160 pp. Illustrated. A treatise on the latest methods of analysis adopted by the leading laboratories which must examine lead and its compounds from an analytical standpoint.
Lead Tree Chart, 9 x 11½ in. 1 p. Framed Chart. Not illustrated. A chart reflecting all the uses of lead, from crude ore to the finished products.

PAINTS, STAINS, VARNISHES & WOOD FINISHES—Continued

Zinc Tree Chart. 9 x 11½ in. 1 p. Framed Chart. Not illustrated. A chart reflecting all the uses of zinc, from the ore to the finished product.
Rust-proofing Pamphlet. 3 x 5 in. 16 pp. Illustrated. Of interest to anyone connected in any way with steel construction.

The Glidden Company, Cleveland, Ohio.
More Daylight. 8 x 10½ in. 20 pp. Portraying by illustrations and text the need and methods of modern mill painting.
Glidden Specification Book. 8 x 10¾ in. 12 pp. Complete architectural specifications for Glidden Paints and Varnishes, including Ripolin. Directions for the proper finishing of wood, metal, plaster, concrete, brick and other surfaces.

Martin Varnish Co., 2500 Quarry St., Chicago, Ill.
Architectural Specifications. Booklet. 8½ x 11 in. 20 pp. Illustrated. Complete guide for Architects in specifying Martin Varnish Products.
Your Floors. Booklet. 5 x 7 in. 20 pp. Illustrated. Explains fully how to finish all kinds of floors and woodwork with Martin's Pure Varnish.

Devoe & Raynolds Co., Inc., 101 Fulton Street, New York.
Architects' Paint & Varnish Manual, containing in concrete form architects' educational letters.

National Lead Company, 111 Broadway, New York, N. Y.
Handy Book on Painting. Book. 5½ x 3¼ in. 100 pp. Gives directions and formulæ for painting various surfaces of wood, plaster, metals, etc., both interior and exterior.
Red Lead in Paste Form. Booklet. 6¼ x 3½. 16 pp. Illustrated. Directions and formulæ for painting metals.
Came Lead. Booklet. 8¾ x 6 in. 12 pp. Illustrated. Describes various styles of lead cames.
Cinch Anchoring Specialties. Booklet. 6 x 3½ in. 20 pp. Illustrated. Describes complete line of expansion bolts.

New Jersey Zinc Company, 160 Front St., New York, N. Y.
Zinc as a Paint Pigment. Technical Treatise on the subject, with illustrations and reports of tests, 24 pp. 6 x 9 in.
Mapaz No. 1 Painting Handbook. Pocket size combination handbook and note book containing valuable information on Zinc Oxide and its use in paint. Other data of interest to architects, including lace stencils, color formulæ, etc.

Pittsburgh Plate Glass Co., Pittsburgh.
Glass, Paints, Varnishes and Brushes. Book. 9 x 11 in. 190 pp. An extremely fine treatise on the history, manufacture, and use of these commodities.

The Ripolin Company, Cleveland, Ohio.
Ripolin Specifications. Book. 8 x 10¾ in. 12 pp. Complete specifications and general instructions for the application of Ripolin, the original Holland enamel paint. Also directions for proper finishing of wood, metal, plaster, concrete, brick and other surfaces.
Why Ripolin Has an International Reputation. 8 x 10¾ in. 24 pp. Designed for the architect's files to illustrate the many varied uses of Ripolin Enamel Paint in all parts of the world. Profusely illustrated.

Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
Preservative Coating. Booklet. 6 x 9 in. 15 pp. Illusrtated. Presents in a concise manner the properties and uses of the Ruberoid Company's various paint preparations.

Sherwin-Williams Company, 601 Canal Rd., Cleveland, Ohio.
Painting Concrete and Stucco Surfaces. Bulletin No. 1. 8½ x 11 in. 8 pp. Illustrated. A complete treatise with complete specifications on the subject of Painting of Concrete and Stucco Surfaces. Color chips of paint shown in bulletin.
Enamel Finish for Interior and Exterior Surfaces. Bulletin No. 2, 8½ x 11 in. 12 pp. Illustrated. Thorough discussion, including complete specifications for securing the most satisfactory enamel finish on interior and exterior walls and trim.
Painting and Decorating of Interior Walls. Bulletin No. 3. 8½ x 11 in. 20 pp. Illustrated. An excellent reference book on Flat Wall Finish, including texture effects, which are taking the country by storm. Every architect should have one on file.
Protective Paints for Metal Surfaces. Bulletin No. 4. 8½ x 11 in. 12 pp. Illustrated. A highly technical subject treated in a simple, understandable manner.

Sonneborn Sons, Inc., L., Dept. 4, 116 Fifth Avenue, New York.
Paint Specifications. Booklet. 8½ x 10¾ in. 4 pp.

PANELING—See Millwork

PARTITIONS

Cur-ti-tion Company, 1991 East 66th Street, Cleveland, Ohio.
Double folding acoustical partitions. Four-page folder, 8½ x 11 ins. Illustrated. The problem of the churches solved by Curti-tion acoustical folding partitions. Describes the uses of Curti-tion partitions in schools and churches. Another folder describing stage curtains is also published by this company.

Hauserman Company, E. F., Cleveland, Ohio
Hollow Steel Standard Partitions. Various folders, 8½ x 11. Illustrated. Give full data on different types of steel partitions, together with details, elevations and specifications.

Improved Office Partition Company, 25 Grand St., Elmhurst, L. I.
Telesco Partition. Catalog. 8¼ x 11 in. 14 pp. Illustrated. Shows typical offices laid out with Telesco partitions, cuts of finished partition units in various woods. Gives specifications and cuts of buildings using Telesco.
Detailed Instructions for erecting Telesco Partitions. Booklet. 24 pp. 8½x11 in. Illustrated. Complete instructions, with cuts and drawings, showing how easily Telesco Partition can be erected.

Richards-Wilcox Mfg. Co., Aurora, Ill.
Partitions. Booklet. 7 x 10 in. 32 pp. Illustrated. Describes complete line of track and hangers for all styles of sliding, parallel, accordion and flush door partitions.

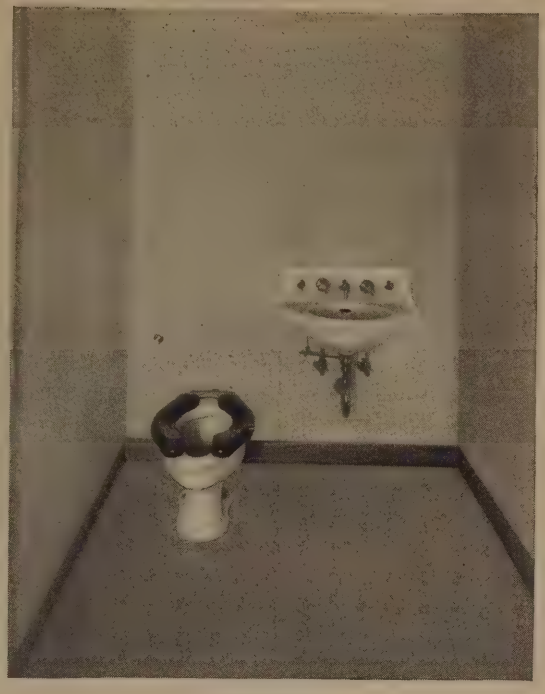
U. S. Gypsum Co., Chicago.
Pyrobar Partition and Furring Tile. Booklet. 8½ x 11 in. 24 pp. Illustrated. Describes use and advantages of hollow tile for inner partitions.

St. Elizabeth's Hospital
Lafayette, Ind.
Main Bldg.
Architect:
D. X. Murphy & Bro.
Plumber:
Wallace Bros. Co.

City Contagious Hospital
Madison, Wisconsin
Architect:
Claude & Starck
Plumber:
W. J. Hyland, Inc.

Allen Memorial Hospital
Waterloo, Iowa
Architect:
Mortimer B. Cleveland
Plumber:
Quest & Smith

Preferred for Exacting Plumbing Since 1878



Men's Toilet
St. Lawrence Hospital, Lansing, Michigan

Oregon State Hospital
Salem, Oregon
Architect:
Lazarus, Whitehouse & Fouilhoux
Plumber:
J. A. Bernardi

Washington County Memorial Hospital
Bartlesville, Oklahoma
Architect:
Walton Everman
Plumber:
Sell * Orr Heating Company

Addition to St. Joseph's Hospital
South Bend, Indiana
Architect:
Fryermuth & Maurer
Plumber:
J. E. Haney

Hospitals Require Out-of-the-ordinary Plumbing

Hospital plumbing is exceptional, in that every hospital apparently has different requirements to be met and different problems to be overcome.

Clow has pioneered the design, construction and stocking of the out-of-the-ordinary fixtures and fittings that meet such requirements and solve such problems. For example, a goodly percentage of the therapeutic equipment in use today is Clow designed and Clow built. When Clow is specified for all plumbing there is an assurance of completeness and thoroughness for Clow is in a position to furnish everything that the installation requires—in plumbing fixtures and therapeutic equipment.

Such modern hospitals as those pictured herewith have learned the value of Clow of all plumbing.

JAMES B. CLOW & SONS, 534-546 S. FRANKLIN ST., CHICAGO
Sales Offices in Principal Cities

CLOW

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 94*

PIPE

American Brass Company, Waterbury, Conn.
Bulletin B-1. Brass Pipe for Water Service. 8½ x 11 in. 28 pp. Illustrated. Gives schedule of weights and sizes (I.P.S.) of seamless brass and copper pipe, shows tpical installations of brass pipe, and gives general discussion of the corrosive effect of water on iron, steel and brass pipe.

A. M. Byers Company, 235 Water St., Pittsburgh, Pa.
Bulletin 26-A. What is Wrought Iron? 8 x 10¾ in. 40 pp. Illustrated. Descriptions of materials and processes employed in manufacturing Byers genuine wrought iron pipe. Factors influencing corrosion. Gives table of pipe sizes, weights, dimensions, tests, etc., and tabulated records of the life of iron and steel pipe in various kinds of service.
Bulletin 30. An Investigation of Pipe Corrosion in Hot Water Service. 8 x 10¾ in. 20 pp. Illustrated. Shows service records of iron, steel and brass pipe used for hot and cold water supply lines in 129 Pittsburgh apartment buildings.
Bulletin 32. Corrosion of Wrought Iron, Cast Iron and Steel Pipe in House Drainage Systems. 8 x 10¾ in. 32 pp. Illustrated. Data obtained through investigations conducted in New York and Chicago by Dr. Wm. P. Gerhardt, C. E. and Thomas J. Claffy, Asst. Chief San. Inspector, City of Chicago.
Bulletin 38. The Installation Cost of Pipe. 32 pp. 8 x 10¾ in. Illustrated. Cost analysis of 20 different pipe installations, in power and industrial plants, office buildings, hotels, residences, etc.

Chase Metal Works, Waterbury, Conn.
Why Brass Pipe. Booklet. 6¼ x 3⅜ in. 6 pp. Small pamphlet showing advantages of brass pipe in concise form, together with table of standard sizes and weights.

Clow & Sons, James B., 534 S. Franklin St., Chicago, Ill.
Catalog "A." 4 x 6½ in. 700 pp. Illustrated. Shows a full line of steam, gas and water works supplies.

National Tube Co., Frick Building, Pittsburgh, Pa.
"National" Bulletin No. 2. Corrosion of Hot Water Pipe. (8½ x 11 in. 24 pp.) Illustrated. In this bulletin is summed up the most important research dealing with hot water systems. The text matter consists of seven investigations by authorities on this subject.
"National" Bulletin No. 3. The Protection of Pipe Against Internal Corrosion (8½ x 11 in. 20 pp.) Illustrated. Discusses various causes of corrosion, and details are given of the deactivating and deaerating systems for eliminating or retarding corrosion in hot water supply lines
"National" Bulletin No. 25. "National" Pipe in Large Buildings. 8½ x 11 in. 88 pp. This bulletin contains 254 illustrations of prominent buildings of all types, containing "National" Pipe and considerable engineering data of value to architects, engineers, etc.
Modern Welded Pipe. Book of 88 pp. (8½ x 11 in.), profusely illustrated with halftone and line engravings of the important operations in the manufacture of pipe.

Reading Iron Company, Reading, Pa.
Reading Genuine Wrought Iron Pipe in the Making and in Service. Bulletin No. 1. 8½ x 11 in. 32 pp. Illustrated. History of the Reading Iron Company. Origin of wrought iron—description of each process of manufacture of both buttweld and lapweld pipe—Reading Pipe in various fields.
Book of Standards. Booklet. 5 x 7 in. 48 pp. Illustrated. Complete tables showing dimensions, tests and list price on each of the 552 different kinds of Reading Tubular goods Two simple tests for distinguishing genuine wrought iron pipe.
The Painted Molecule. Booklet. 4 x 9 in. 8 pp. Illustrated. A brief, non-technical description of the reasons for the longer life of Reading Iron Pipe, with instances of actual service.
The Ultimate Cost. Booklet. 5¼ x 7¼ in. 24 pp. Illustrated in two colors. A comparison in actual figures of the initial cost and the ultimate cost of plumbing and heating systems in several kinds of homes.

Grinnell Company, 285 West Exchange Street, Providence, R. I.
Grinnell Bulletin Booklet. 10½ x 7¾ in. Illustrated. Issued monthly. Describes and illustrates the different Grinnell products.

PLUMBING EQUIPMENT

American Brass Company, Waterbury, Conn.
Benedict Nickel. Illustrated pamphlet descriptive of Benedict Nickel White Metal for high grade plumbing fixtures.

Brunswick-Balke-Collender Co., 623 S. Wabash Ave., Chicago, Ill.
Whale-bone-ite Seat. Booklet. 3½ x 6¼ in. 4 pp. Illustrated.

Clow & Sons, James B., 534 S. Franklin Street,, Chicago, Ill.
Catalog "M." 9¼ x 12 in. 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools,. Railroads and Industrial Plants.

Crane Company, 836 S. Michigan Avenue, Chicago, Ill.
Crane Products in World Wide Use. Catalog. 5 x 9½ in. 24 pp. Illustrated.
Plumbing Suggestions for Home Builders. Catalog. 3 x 6 in. 80 pp. Illustrated.
Plumbing Suggestions for Industrial Plants. Catalog. 4 x 6½ in. 43 pp. Illustrated.

Douglas Co., The John, Cincinnati, Ohio.
Catalog "C." 10½ x 8 in. 200 pp. Illustrated. Illustrates and describes the Douglas complete line of China Sanitary plumbing fixture.
Booklet. Douglas Suggests for your Home. 6 x 3½ in. 39 pp. Illustrated.

Eljer Company, Fort City, Pa.
Complete Catalog. 3¾ x 6¾ in. 104 pp. Illustrated. Describes fully the complete Eljer line of standardized vitreous china plumbing fixtures, with diagrams, weights and measurements.
Standardized Sixteen Circular. 3¾ x 6¾ in. 18 pp. Illustrated.

Kohler Co., Kohler, Wis.
Catalog F. 7½ x 10⅝ in. 216 pp. Illustrates and describes the complete line of Kohler trade-marked plumbing ware.
Roughing-In Measurement Binder. 5 x 8 in., containing loose leaf sheets on all staple fixtures.

PLUMBING EQUIPMENT—Continued

Maddock's Sons Company, Thomas, Trenton, N. J.
Catalog K. 10⅞ x 7⅞ in. 242 pp. Illustrated. Complete data on vitreous china plumbing fixtures with brief history of Sanitary Pottery.

Speakman Company, Wilmington, Del.
Speakman Showers and Fixtures. Catalog. 4½ x 7½ in. 250 pp. Illustrated. Catalog of Modern Showers and Brass Plumbing Fixtures, with drawings showing layouts, measurements, etc.
Toned Up in Ten Minutes. Booklet. 7½ x 10½ in. 16 pp. Illustrated. Modern Showers and Washups for Industrial Plants, showing the sanitary method of washing in running water.

PUMPS

Chicago Pump Company, 2300 Wolfram Street, Chicago, Ill.
The Correct Pump to Use. Portfolio containing handy data. Indivdiual bulletins, 8½ x 11 in., on bilge, sewage, condensation, circulating, house, boiler feed and fire pumps.

Goulds Mfg. Co., The, Seneca Falls, N. Y.
Set of Twenty Bulletins. 7½ x 10⅝ in. 12 to 32 pp. each. Illustrated. Covers complete line of power and centrifugal pumps for all services.

Kewanee Private Utilities Co., 442 Franklin St., Kewanee, Ill.
Bulletin E. 7¾ x 10¾ in. 32 pp. Illustrated. Catalog. Complete descriptions, with all necessary data, on Standard Service Pumps, Indian Brand Pneumatic Tanks, and Complete Water Systems, as installed by Kewanee Private Utilities Co.

RAMPS

Ramp Buildings Corporation, 115 Broad St., New York, N. Y.
The d'Humy Motoramp System of Building Design. Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes the d'Humy system of ramp construction for garages, service buildings, factories, warehouse, etc., where it is desirable to drive motor vehicles or industrial tractors under their own power from floor to floor.
Storage Efficiency of Multi-Floor Garages. Leaflet. 8½ x 11 in. 4 pp. Illustrated. A brief discussion of comparative storage efficiencies of elevator garages, ordinary ramp garages, and d'Humy Motoramp garages.
Visibility. Pamphlet. 8½ x 11 in. 2 pp. Illustrated. Discussion of visibility feature of d'Humy Motoramp System with reference to illustration of one particular installation.
Series of Informal Bulletins on Garage Design. Sent upon request.

REINFORCED CONCRETE—See also Construction, Concrete

The General Fireproofing Company, Youngstown, Ohio.
Self-Sentering Handbook. 8½ x 11 in. 36 pp. Illustrated. Methods and specifications on reinforced concrete floors, roofs and floors with a combined form and reinforced material.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.
National Steel Fabric. Booklet. 32 pp. 8½ x 11 in. A valuable work on the subject of concrete and its reinforcing.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.
Shearing Stresses in Reinforced Concrete Beams. Booklet. 8½ x 11 in. 12 pp.

North Western Expanded Metal Company, Chicago, Ill.
Designing Data. Book. 6 x 9 in. 96 pp. Illustrated. Covers the use of Econo Expanded Metal for various types of reinforced concrete construction.

ROOFING

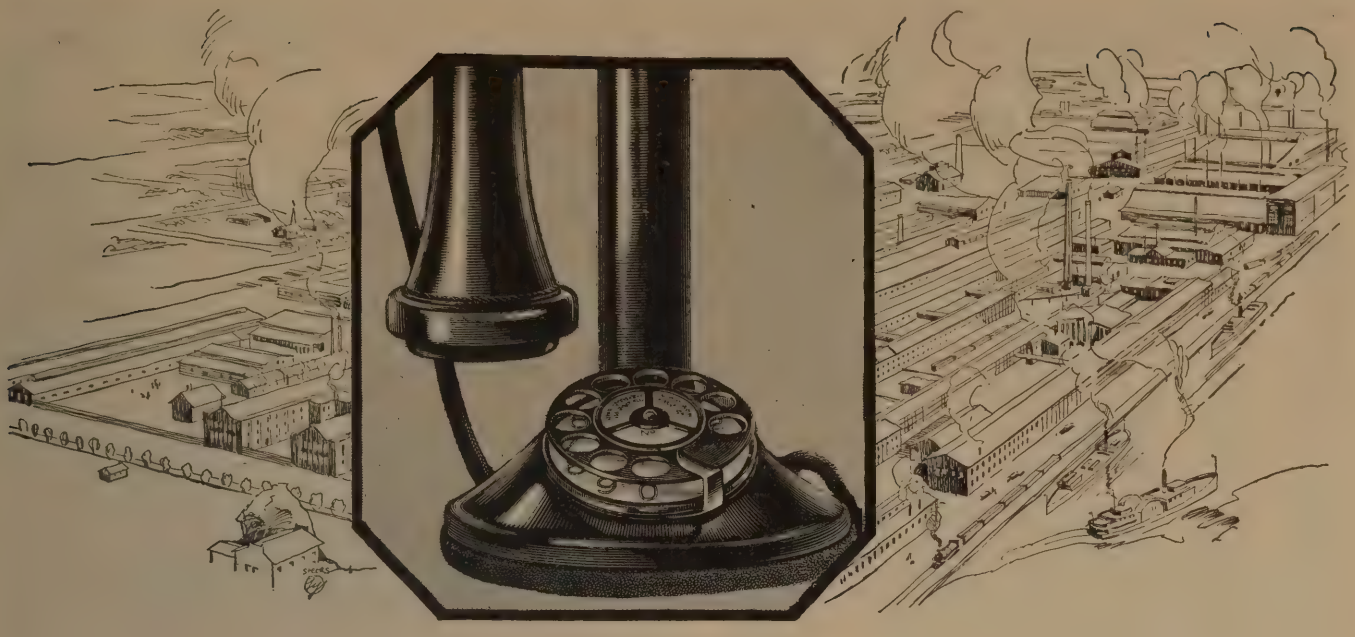
American Brass Company, Waterbury, Conn.
Service Sheets 43-1 and 43-2, standard specifications and methods of laying copper roofings, flashings, hips, valleys, decks, gutters and leaders.

American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Pa.
Better Buildings. Catalog. 8½ x 11 in. 32 pp. Describes Corrugated and Formed Sheet Steel Roofing and Siding Products, black, painted and galvanized, with directions for application of various patterns of Sheet Steel Roofing in various types of construction.
Copper—Its Effect Upon Steel for Roofing Tin. Catalog. 8½ x 11 in. 28 pp. Illustrated. Describes the merits of high-grade roofing tin plates and the advantages of the copper-steel alloy.
The Testimony of a Decade. Booklet. 8½ x 11 in. 16 pp., with Graphic Chart and illustrations showing losses to various Iron and Steel Sheets for roofing, from atmosphere corrosion.

Philip Carey Co., Lockland, Cincinnati, Ohio.
Architects Specifications for Carey Built-up Roofing. Booklet. 8 x 10¾ in. 24 pp. Illustrated. Complete data to aid in specifying the different types of built-up roofing to suit the kind of roof construction to be covered.
Carey Built-up Roofing for Modern School Buildings. Booklet. 8 x 10¾ in. 32 pp. Illustrated. A study of school buildings of a number of different kinds and the roofing materials adapted for each.

Federal Cement Tile Co., 110 So. Dearborn St., Chicago, Ill.
The Indestructible Roof. Booklet. 10 x 13 in. 32 pp. Illustrated. Illustrates and describes the installation of permanent concrete interlocking tile, tile with glass insets, flat tile and channel tile, on all types of industrial plants and other buildings with flat and pitched surfaces.
Standards. Booklet. 8½ x 11 in. 40 pp. Illustrated with full-page drawings. Gives full details of all forms of roof construction of steel structure, ridge and gutter construction, purlin arrangement, spacing, etc., for standard roofs.

Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.
Johns-Manville Building Materials. Book. 8½ x 11 in. 100 pp. Illustrated. A comprehensive catalog of various types of roofing for all forms of construction. Details of wall, floor and ceiling insulation; asbestos wood for fireproof construction; waterproofing, etc.
Johns-Manville Asbestos Shingles. Booklet. 8½ x 11 in. 24 pp. Illustrated. This booklet is profusely illustrated in colors, showing some very artistic blends of asbestos shingles with various types of architecture. Contains many valuable suggestions for the architect.



68 Buildings that Work as One

Since 1840 the artisan has known a difference in saws. His preference for quality has built such a business for Henry Disston & Sons that at Philadelphia their factory site covers 65 acres and their 3600 workers are busy in 68 separate buildings

What a problem in effective co-ordination of units!

What a problem in rapid and convenient intercommunication!

What a perfect "set up" for the P-A-X!

Today the P-A-X is an integral part of the Disston organization. Without the services of an operator the P-A-X affords instant, accurate and direct telephone connections between all departments at any hour of the day or night.

No useless delays nor duplication of efforts because one unit doesn't know what another is doing.

No expensive waiting while a messenger wanders around the 65 acres delivering a message or hunting an executive who isn't at his regular post.

The P-A-X delivers a message in 5 seconds or less and permits of an instant reply. If it is a matter concerning many, the Conference Wire allows any number of persons to talk the subject over while each is seated at his own desk.

Through its Code Call service the P-A-X provides for the immediate location of and conversation with any executive or important employee wherever in the plant they may be at the time.

Disston has 68 buildings in Philadelphia. The P-A-X keeps them as one

STROWGER AUTOMATIC

The P-A-X is a private automatic telephone exchange built of the same Strowger type of Automatic telephone equipment being so widely adopted for city service. Besides its fundamental use for interior telephony, the P-A-X includes and co-ordinates such services as code call, conference, executive's priority, emergency alarm, etc. It meets all intercommunication needs.

Automatic Electric Company

Home Office and Factory, CHICAGO, ILL., *Branch Offices:* New York, 21 East Fortieth St.; Cleveland, Cuyahoga Bldg. Representatives in all principal cities. *In Canada*—Northern Electric Co., Ltd., 121 Shearer St., Montreal, P. Q. *Abroad*—International Automatic Telephone Co., Norfolk House, Norfolk St., Strand, London, W. C. 2, England. *In Australia*—Automatic Telephones, Ltd., Mendes Chambers, Castlereagh St., Sydney.

P-A-X

TRADE MARK

PRIVATE AUTOMATIC EXCHANGE

Automatic Electric Company is the originator of P-A-X and is the only organization in the United States manufacturing interior telephone equipment under this trademark. Its use by any other company is absolutely unauthorized.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 96*

ROOFING—Continued

Ludowici-Celadon Company, 104 So. Michigan Ave., Chicago, Ill.
"Ancient" Tapered Mission Tiles. Leaflet. 8½ x 11 in. 4 pp. Illustrated. For architects who desire something out of the ordinary, this leaflet has been prepared. Describes briefly the "Ancient" Tapered Mission Tiles, hand-made, with full corners and designed to be applied with irregular exposures.

Milwaukee Corrugating Co., Milwaukee, Wis.
The Milcor Architectural Sheet Metal Guide. Booklet. 8½ x 11 in. 64 pp. Illustrated. Gives valuable technical sheet metal data.

New Jersey Zinc Company, 160 Front St., New York, N. Y.
Standing Seam Horse Head Zinc Roofing. Booklet outlining the adaptability of this roofing for many types of buildings. Illustrated with sketches showing how roofing is applied. Also describes lasting qualities, appearance, etc.
Once in a Lifetime. Booklet describing conductors, gutters and standing seam roofing made from Horse Head Zinc. Contains information on their economy and durability. Illustrated.

Richardson Company, The, Lockland, Ohio.
Roofs of Distinction. Booklet. 5 x 6¾ in. 22 pp. Illustrated in 4 colors and black and white.
Gives process of roofing manufacture. Has color charts showing four shingles of different colors blended in same roof. Lists and describes Richardson Products.
Roofing on the Farm. Booklet. 5 x 6¾ in. 22 pp. Illustrated in 4 colors and black and white.
A solution to farm roofing problems.
Viskalt Roof Specifications. Booklet. 7 x 12 in. 10 pp. Illustrated. Specifications for applying Viskalt Membrane built on roofs.
A Specific Way to Outwit the Weather. Booklet. 10 x 12 in. 4 pp. Illustrated.
Treatise on recoating old roofs.

Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
Instructions for Laying Built-up Roofs. Booklet. 8½ x 11 in. Illustrated.
Ruberoid Strip Shingle. Booklet. 3½ x 6¼ in. 16 pp. Illustrated in color.

United Alloy Steel Corporation, Canton, Ohio.
Better Sheet Metal, 8½ x 11 in. 128 pp. and cover. Illustrated. Shows the many uses of Toncan Metal with many pictures of buildings, names of architects, etc., also tables of weights and other useful specification data.

U. S. Gypsum Co., Chicago.
Pyrobar Roof Construction. Booklet. 8 x 11 in. 48 pp. Illustrated. Gives valuable data on the use of tile in roof construction.
Sheetrock Pyrofill Roof Construction. Folder. 8½ x 11 in. Illustrated. Covers use of roof surfacing which is poured in place.

RUGS, IMPORTED

Kent-Costikyan Trading Company, Inc., 484 Fifth Ave., New York, N. Y.
Rugs, Catalogue. 9½ x 6½ in. 56 pp. Illustrated. Illustrates and describes an unusual collection of Oriental and Occidental rugs with stock list.

SASH CHAIN

American Chain Company, Inc., Bridgeport, Conn.
American Sash Chain. Booklet. 6 x 9 in. 16 pp. Illustrated. Describes and illustrates American Sash Chain and Sash Fixtures.

Smith & Egge Mfg. Co., The, Bridgeport, Conn.
Chain Catalog. 6 x 8½ in. 24 pp. Illustrated. Covers complete line of chains.

SASH CORD

Samson Cordage Works, Boston, Mass.
Catalog. 3½ x 6¾ in. 24 pp. Illustrated. Covers complete line of rope and cord.

SCREENS

Athey Company, 6015 West 65th St., Chicago, Ill.
The Athey Perennial Window Shade. An accordian pleated window shade, made from translucent Herringbone woven Coutil cloth, which raises from the bottom and lowers from the top. It eliminates awnings, affords ventilation, can be dry-cleaned and will wear indefinitely.

The Higgin Manufacturing Co., Newport, Ky.
Your Home Screened the Higgin Way. Booklet. 8½ x 11½ in. 13 pp. Illustrated in colors. Complete description of Higgin Screens, designed to meet every need.

New Jersey Wire Cloth Co., Trenton, N. J.
A matter of Health and Comfort. Booklet. 5 x 7¾ in. 16 pp. Illustrated. Discusses quality in wire insect screen cloth.

SEWAGE DISPOSAL

Kewanee Private Utilities, 442 Franklin St., Kewanee, Ill.
Specification Sheets. 7¾ x 10¼ in. 40 pp. Illustrated. Detailed drawings and specifications covering water supply and sewage disposal systems.

SHEATHING

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.
For All Time and Clime. Booklet. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.

STAINS—See Paints, Varnishes, Wood Finishes

STONE, BUILDING

Indiana Limestone Quarrymen's Association, Box 766, Bedford, Ind.
Volume 3, Series A-3. Standard Specifications for Cut Indiana Limestone work, 8½ x 11 in. 56 pp. Containing specifications and supplementary data relating to the best methods of specifying and using this stone for all building purposes.
Vol. 1. Series B. Indiana Limestone Library. 6 x 9 in. 36 pp. Illustrated. Giving general information regarding Indiana Limestone, its physical characteristics, etc.
Vol. 4. Series B. Booklet. New Edition. 8½ x 11 in. 64 pp. Illustrated. Indiana Limestone as used in Banks.
Volume 5. Series B. Indiana Limestone Library. Portfolio. 11⅜ x 8¾ in. Illustrated. Describes and illustrates the use of stone for small houses with floor plans of each.

STORE FRONTS

Brasco Manufacturing Co., 5025-35 South Wabash Avenue, Chicago, Ill.
Portfolio. 8½ x 11 in. 32 pp. Illustrated. Selected examples of Brasco Copper Store Fronts suitable for different businesses and varying conditions of locations.
Catalogue 28. 8½ x 10¾ in. 20 pp. Illustrated with plates. Details of Brasco Copper Store front construction. Also showcases, ventilator sashes.
Detail Sheets. Set of five sheets giving details and suggestions for store front designing enclosed in envelope convenient for filing.

Kawneer Co., The, Niles, Mich.
A Collection of Successful Designs. Catalog. 9¼ x 6½. in. 64 pp. Illustrated. Showing by use of drawings and photographs many types of Kawneer Solid Copper Store Fronts.
Catalog L, 1925 Edition. 8½ x 11 in. 32 pp. Illustrated. Details of copper store front construction.
Metal Store Fronts. Sheets, 17 x 22 in. Draftsmen's details of copper store fronts for use in tracing.

Zouri Drawn Metals Company, Chicago Heights, Ill.
Zouri Safety Key-Set Store Front Construction. Catalogue. 8½ x 10½in. 60 pp. Illustrated. Complete information with detailed sheets and installation instructions convenient for architects' files.
International Store Front Construction. Catalogue. 8½ x 10 in. 70 pp. Illustrated. Complete information with detailed sheets and installation instructions convenient for architects' files.

STUCCO

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.
For All Time and Clime. Booklet. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishopric stucco base and Bishopric plaster base.

STUCCO BASES

Bishopric Manufacturing Co., 103 Este Ave., Cincinnati, Ohio.
Specifications and Working Details. Booklet. 7¾ x 10½ in. Illustrated. Contains plainly written instructions for the use of stucco, stucco base, plaster base and insulation base.

National Steel Fabric Co., Union Trust Building, Pittsburgh, Pa.
Building a Permanent Home. Brochure 4 x 9 ins. 20 pp. Discusses the use of steel materials in domestic buildings in a way likely to interest architects and builders.
Sales Manual. Loose leaf, 8½ x 11 ins. Complete data and specifications regarding the use of this company's products.

STUCCO, MAGNESITE

Muller & Co., Franklyn R., Waukegan, Ill.
Everlastic Magnesite Stucco. Booklet. 8½ x 11 in.

TERRA COTTA

National Terra Cotta Society, 19 West 44th St., New York, N. Y.
Standard Specifications for the Manufacture, Furnishing and Setting of Terra Cotta. Brochure 8½ x 11 in. 12 pp. Furnishing and Setting of Terra Cotta, consisting of complete detail Specification, Glossary of Terms Relating to Terra Cotta and Short Form Specification for incorporating in Architect's Specifications.
Color in Architecture. Revised Edition. Permanently bound volume 9⅞ x 12¼ in., containing a treatise upon the basic principles of color in architectural design, illustrating early European and modern American examples. Excellent illustrations in color.
Present Day Schools. 8½ x 11 in. 32 pp. Illustrating 42 examples of school architecture with article upon school building design by James O. Betelle, A. I. A.
Better Banks. 8½ x 11 in. 32 pp. Illustrating many banking buildings in terra cotta with an article on its use in bank design by Alfred C. Bossom, Architect.

Northwestern Terra Cotta Co., The, 2525 Clybourn Ave., Chicago, Ill.
Booklet. 8¼ x 11 in. 77 pp. Illustrated. Showing in a concise way the usefulness of terra cotta.

TERRAZZO

Galassi Company, 153 East 38th Street, New York, N. Y.
Suggesting a Standard Specification for Terrazzo Work Booklet. Specifications for the use of terrazzo.

THERMOSTATS—See Heating Equipment

TILE, FLOOR AND WALL

Associated Tile Manufacturers, The, Beaver Falls, Pa.
Basic Information Booklet. 7½ x 10⅝ in. 24 pp. Illustrated. Ask for Booklet K-200.
A publication issued for architects, engineers and educators to acquaint them with methods of grading, derivation of sizes and shapes, variety of colors, kind of finishes, nomenclature and ingredients and processes insofar as they lead to a better understanding of the product and its uses.
Basic Specifications and Related Documents, Booklet. 7½ x 10⅝ in. 38 pp. Ask for Booklet K-300.
The Basic Specification proper gives in detail the procedure to be followed with respect to any kind of tile installation in connection with practically every type of construction. The Related Documents or work sheets are designed to call attention to optional application methods and materials.
Swimming Pools. Booklet. 8½ x 11 in. 32 pp. Illustrated. Issued for the use of architects and engineers as a handbook on swimming pools and their construction.
Bringing the Crowds to Your Market. Booklet. 8½ x 11 in. 16 pp. Illustrated in color. Shows use of tile for the modern sanitary market.

TILE, HOLLOW

National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.
Standard Wall Construction Bulletin 174. 8½ x 11 in. 32 pp. Illustrated. A treatise on the subject of hollow tile wall construction.
Natco on the Farm. 8½ x 11 in. 38 pp. Illustrated. A treatise on the subject of fire safe and permanent farm building construction.
Natco Homes and Garages. Booklet. 7 x 10 in. 32 pp. Illustrated. Showing the use of Natco Hollow Tile for private residences.

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HIGH SCHOOL
AUDITORIUM,
Johnstown, Pa.

Carey Built-Up Roofs are used on schools in almost every State in the Union. More than fifty schools in the city of Detroit alone are Carey roofed.

THE permanence of this fine building is made more certain by the use of a Carey asphalt built-up roof.

Fifty years of roof making experience have contributed to the quality of the roofing materials. Carey roofs in all parts of the country are still giving good service after several decades of exposure.

Write for Architects' Specification Book.

THE PHILIP CAREY COMPANY
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A Roof for Every Building

Carey
BUILT-UP ROOFS

8-25

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page 98*

VACUUM CLEANING APPARATUS

The Spencer Turbine Company, Hartford, Conn.
Vacuum Cleaning Apparatus for all purposes. Booklet. 32 pp. Illustrated. Complete information on product, showing prominent buildings equipped with this system.

VALVES

Crane Co., 836 S. Michigan Ave., Chicago, Ill.
No. 51. General Catalogue. Illustrated. Describes the complete line of the Crane Co.

Gorton & Lidgerwood Co., 96 Liberty St., New York, N. Y.
Gorton Quarter-Turn Packing-Lock Valves. Booklet. 4¼ x 7¼ in. 32 pp. Illustrated. Describing a new type of valve for all systems of steam, hot water and vacuum heating.

Illinois Engineering Co., Racine Ave., at 21st St., Chicago, Ill.
Catalogue. 8½ x 11 in. 88 pp. Illustrated.

Jenkins Bros., 80 White Street, New York.
The Valve Behind a Good Heating System. Booklet 4½ x 7¼ in. 16 pp. Color plates. Description of Jenkins Radiator Valves for steam and hot water, and brass valves used as boiler connections.
Jenkins Valves for Plumbing Service. Booklet. 4½ x 7¼ in. 16 pp. Illustrated. Description of Jenkins Brass Globe, Angle Check and Gate Valves commonly used in home plumbing, and Iron Body Valves used for larger plumbing installations.

VARNISH—See Paints, Stains, Varnishes

VENETIAN BLINDS

Burlington Venetian Blind Co., Burlington, Vt.
Venetian Blinds. Booklet, 7 in. x 10 in., 24 pages. Illustrated. Describes the "Burlington" Venetian blinds, method of operation, advantages of installation to obtain perfect control of light in the room.

VENTILATION

Globe Ventilator Company, 205 River Street, Troy, N. Y.
Globe Ventilators Catalog. 6 x 9 in. 32 pp. Illustrated profusely. Catalog gives complete data on "Globe" ventilators as to sizes, dimensions, gauges of material and table of capacities. It illustrates many different types of buildings on which "Globe" ventilators are in successful service, showing their adaptability to meet varying requirements.

Van Zile Ventilating Corporation, 280 Madison Avenue, New York, N. Y.
The Ventadoor Booklet. 6½ x 3½ in. 16 pp. Illustrated. Describes and illustrates the use of the Ventadoor for Hotels, Clubs, Offices, etc.

WALLPAPER

Wallpaper Mfrs. Assn., 461 Eighth Avenue, New York.
Wallpaper Magazine. Illustrated. 8 x 11 in. 32 pp. Published monthly to acquaint architects and interior decorators with many interesting and decorative uses for wallpaper.

WATERPROOFING

Carey Company, The Philip, Lockland, Cincinnati, Ohio.
Waterproofing Specification Book. 8½ x 11 in. 52 pp.

The General Fireproofing Company, Youngstown, Ohio.
Waterproofing Handbook. Booklet. 8½ x 11 in. 72 pp. Illustrated. Thoroughly covers subject of waterproofing concrete, wood and steel preservatives, dustproofing and hardening concrete floors, and accelerating the setting of concrete. Free distribution.

Master Builders Company, Cleveland, Ohio.
Mastertex: Waterproof Cement Paint in Colors. Folder 10½ x 12½ inches.

Ruberoid Co., The. 95 Madison Ave., New York.
Impervite. Circular. 8½ x 11 in. 4 pp. Illustrated. An integral water-proofing compound for concrete, stucco, cement, mortar, etc.

Sandusky Cement Co., Dept. F., Cleveland, Ohio.
Medusa Waterproofing. Booklet. 6¾ x 9 in. 38 pp. Illustrated.

Sonneborn Sons, Inc., L., 116 Fifth Ave., New York, N. Y.
Pamphlet. 3¾ x 8¾ in. 8 pp. Explanation of waterproofing principles. Specifications for waterproofing walls, floors, swimming pools and treatment of concrete, stucco and mortar.

WATER PURIFIERS

Wallace & Tiernan Company, Newark, N. J.
Protecting N. Y. Water Supply. Booklet. 10 x 7 in. 4 pp. Illustrated. Describes the chlorinating equipment used for sterilizing N. Y. City water supply; also equipment suitable for sterilizing water supplies of municipalities, industrial plants, private residences, etc.

WATER SOFTENERS

Permutit Company, The, 440 Fourth Ave., New York, N. Y.
Permutit-Water softened to No (Zero) Hardness. Booklet. 8½ x 11 in. 32 pp. Describing the original Zeolite process of softening water to zero hardness. An essential for homes, hotels, apartment houses, swimming pools, laundries, textile mills, paper mills, ice plants, etc., in hard water districts.

WEATHER STRIPS

Chamberlin Metal Weather Strip Company, 1644 Lafayette Boulevard, Detroit, Mich.
Chamberlin Metal Weather Strip Details, 1925 edition. Catalog 8½ x 11 in. 48 pp. Complete specifications and full-sized details. With or without 9 x 11¾ in. folder conforming to A. I. A. filing system. May also be used in loose leaf form.
Excluding Cold and Dust with Chamberlin for 32 years. Booklet 5⅛ x 7⅜ in. 16 pp. Illustrated. Completely and interestingly illustrates application of Chamberlin equipment.

The Higgin Manufacturing Co., Newport, Ky.
Higgin All-Metal Weather Strips. Booklet. 6 x 9 in. 21 pp. Illustrated in colors. Describes various types of Higgin Weather Strips for sealing windows and doors against cold and dust.

WINDOW HARDWARE, CASEMENT

Hoffman Mfg. Co., Andrew, 900 Steger Bldg., Chicago, Ill.
Hoffman Casement Fixtures. Architects' Portfolio. 8½ x 11 in. 30 pp. Loose-leaf. Scale details for mill-work, installations, etc., in new and old work.

WINDOWS, CASEMENT

Richards-Wilcox Mfg. Co., Aurora, Ill.
Casement Window Hardware. Booklet. 24 pp. 8½ x 11 in. Illustrated. Shows typical installations, detail drawings, construction details, blue-prints if desired. Describes AIR-way Multifold Window Hardware.

Crittall Casement Window Co., 10951 Hearn Ave., Detroit, Mich.
Catalog No. 22. 9 x 12 in. 76 pp. Illustrated. Photographs of actual work accompanied by scale details for casements and composite steel windows for banks, office buildings, hospitals and residences.

Detroit Steel Products Co., Detroit, Mich.
Fenestra Casement Windows. Catalog. 8½ x 11 in. 20 pp. Illustrated. Gives construction and installation details of steel casements, standard and stock types and sizes.

Hoffman Mfg. Co., Andrew, 900 Steger Bldg., Chicago, Ill.
Hoffman Casements. Architects' Portfolio. 8½ x 11 in. 30 pp. Looseleaf. Scale details for mill-work, installation, etc., in new and old work.

Hope & Sons, Henry, 103 Park Ave., New York, N. Y.
Catalog. 12¼ x 18½ in. 30 pp. Illustrated. Full size details of outward and inward opening casements.

WINDOWS, STEEL AND BRONZE

Detroit Steel Products Company, Detroit, Mich.
Fenestra Basement Windows. Booklet. 3⅝ x 6¼ in. 16 pp. Illustrated. Describes steel basement windows, their advantages, details and specifications for installation.
Fenestra Reversible Ventilator Windows. Booklet. 8½ x 11 in. 20 pp. Illustrated. Describes the details of this new model window, as well as the variety it offers for attractive architectural design.
Fenestra Industrial Window Walls. Catalog. 8½ x 11 in. 111 pp. Illustrated. Details and specifications, with photographic illustrations, are thoroughly covered in the Fenestra General Catalog.

The Kawneer Company, Niles, Mich.
Kawneer Simplex Windows. Catalog. 8½ x 10½ in. 16 pp. Illustrated. Complete information, with measured details, of Kawneer Simplex Weightless Reversible Window Fixtures, made of solid bronze. Shows installations in residences and buildings of all sorts.
Detail Sheets and Installation Instructions. Valuable for architects and builders.
Metal Windows. Catalog. 8½ x 11 in. 18 pp. Illustrated. Features double-lining and casement windows of metal.

Truscon Steel Company, 250 W. Lafayette Blvd., Detroit, Mich.
Truscon Steel Windows. Catalog. 8½ x 11 in. 80 pp. Illustrated. Contains complete data on all types of Truscon Steel Windows.

WOOD—See also Millwork

American Walnut Mfrs. Association, 618 So. Michigan Blvd., Chicago, Ill.
American Walnut. Booklet. 7 x 9 in. 45 pp. Illustrated. A very useful and interesting little book on the use of Walnut in Fine Furniture with illustrations of pieces by the most notable furniture makers from the time of the Renaissance down to the present.
Real American Walnut Furniture. Folder. 8½ x 11 in. 4 pp. Illustrated. Tells how to identify the genuine and avoid the substitute in buying "Walnut" furniture.

California White and Sugar Pine Mfrs. Assn., San Francisco, Cal.
Information Sheet No. 1, California White Pine; Information Sheet No. 2, California Sugar Pine. Illustrated booklets 8 x 10½ in. First of a series of Information Sheets on these woods and their uses for construction and finish.

Curtis Companies Service Bureau, Clinton, Iowa.
Better Built Homes. Vols. XV-XVIII, incl. Booklet. 9 x 12 in. 40 pp. Illustrated. Designs for houses of five to eight rooms, respectively, in several authentic types, by Trowbridge & Ackerman, architects, for the Curtis Companies.

Long-Bell Lumber Co., Kansas City, Mo.
The Perfect Floor. Booklet 5¼ x 7¾ in., 16 pp. Illustrated. Valuable for the data given on the use of wood for floors.
Saving Home Construction Costs. Booklet 4⅛ x 7½ in. 24 pp. Discusses economy and value in domestic building.
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The Post Everlasting. Booklet 8 x 11 in. 32 pp. Illustrated. Describes the production of posts and their use in various ways.

Mahogany Association, Inc., 1133 Broadway, New York.
Booklet. 6 x 8 in. "Stately Mahogany," giving a general description of mahogany, where found and its uses.
Booklet. 6 x 8 in. "Historic Mahogany." A monograph of period mahogany fully illustrated with pen drawings.
Booklet. 6 x 8 in. Architectural Woodwork of Mahogany. 32 pp., fully illustrated with photographs of mahogany panelings and containing much information of interest to architects.

Matthews Bros. Mfg. Company, Milwaukee, Wis.
Architectural Woodwork. Catalog. 9 x 12 in. 34 pp. Illustrated. This is the only catalog issued, and contains views showing both exteriors and interiors of banks, private residences, and office buildings in which this Company's woodwork has been installed.

Pacific Lumber Company, 332 So. Michigan Ave., Chicago, Ill.
California Redwood. Booklet. 9 x 12 in. 36 pp. Illustrated. Describes in a general way the production, manufacture and various uses of California Redwood.
Redwood Construction Digest. Booklet. 8½ x 11 in. 16 pp. Illustrated. Redwood and Its Uses in the Construction Field. Contains specifications and other information of interest to architects.

WOOD FINISHES—See Paints, Varnishes, Stains

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You will find that carpenters like to work with these soft pines because of the ease and rapidity of cutting, and the accurate workmanship possible. The economy of California Pine interior woodwork lies in the lessening of labor for installation and the elimination of wasting material in cutting.

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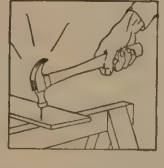

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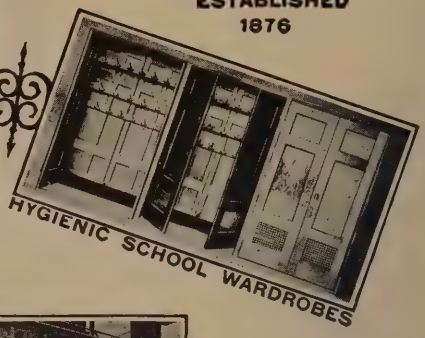

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It possesses the rigid strength of the Copper-Steel that constitutes its base, and therefore does not crush or dent in handling. This insures a good workmanlike job and proper appearance on the building. And in addition to its strength of steel it affords the doubly efficient protection against rust through its rust-resistant base plus the heaviest known coating of pure zinc,—made possible by the hand dipping process.

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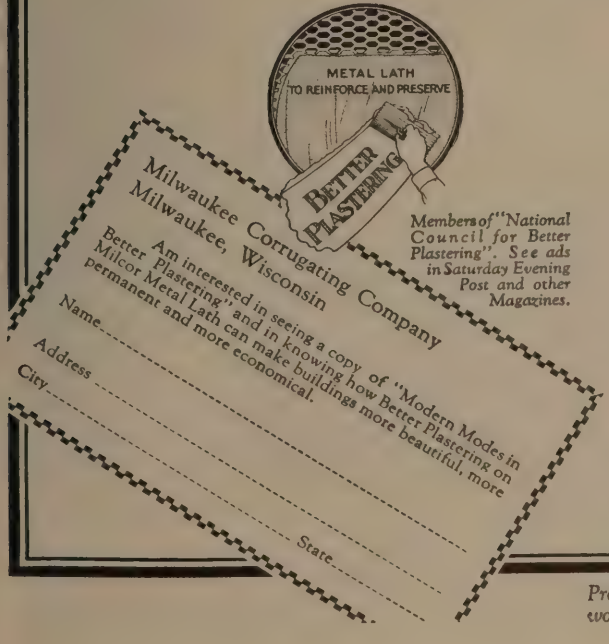
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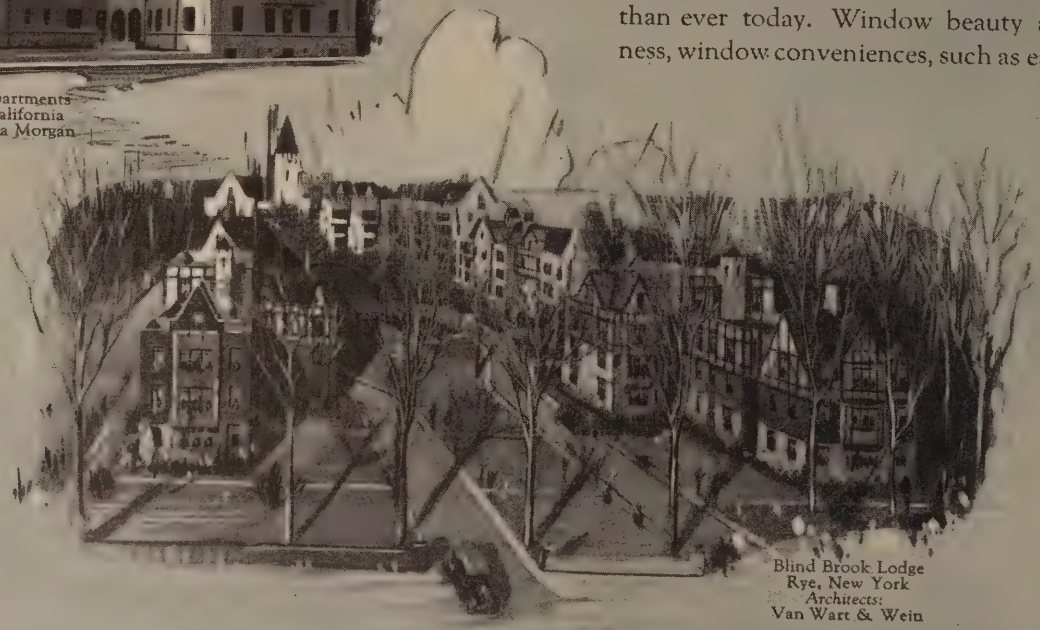

Blind Brook Lodge
Rye, New York
Architects:
Van Wart & Wein

Casement Windows Apartments

ing and easy operation, an abundance of light without eating up too much wall space and thorough ventilation are some of the Fenestra advantages which influence the renting of apartments.

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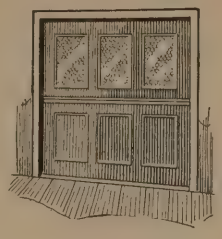

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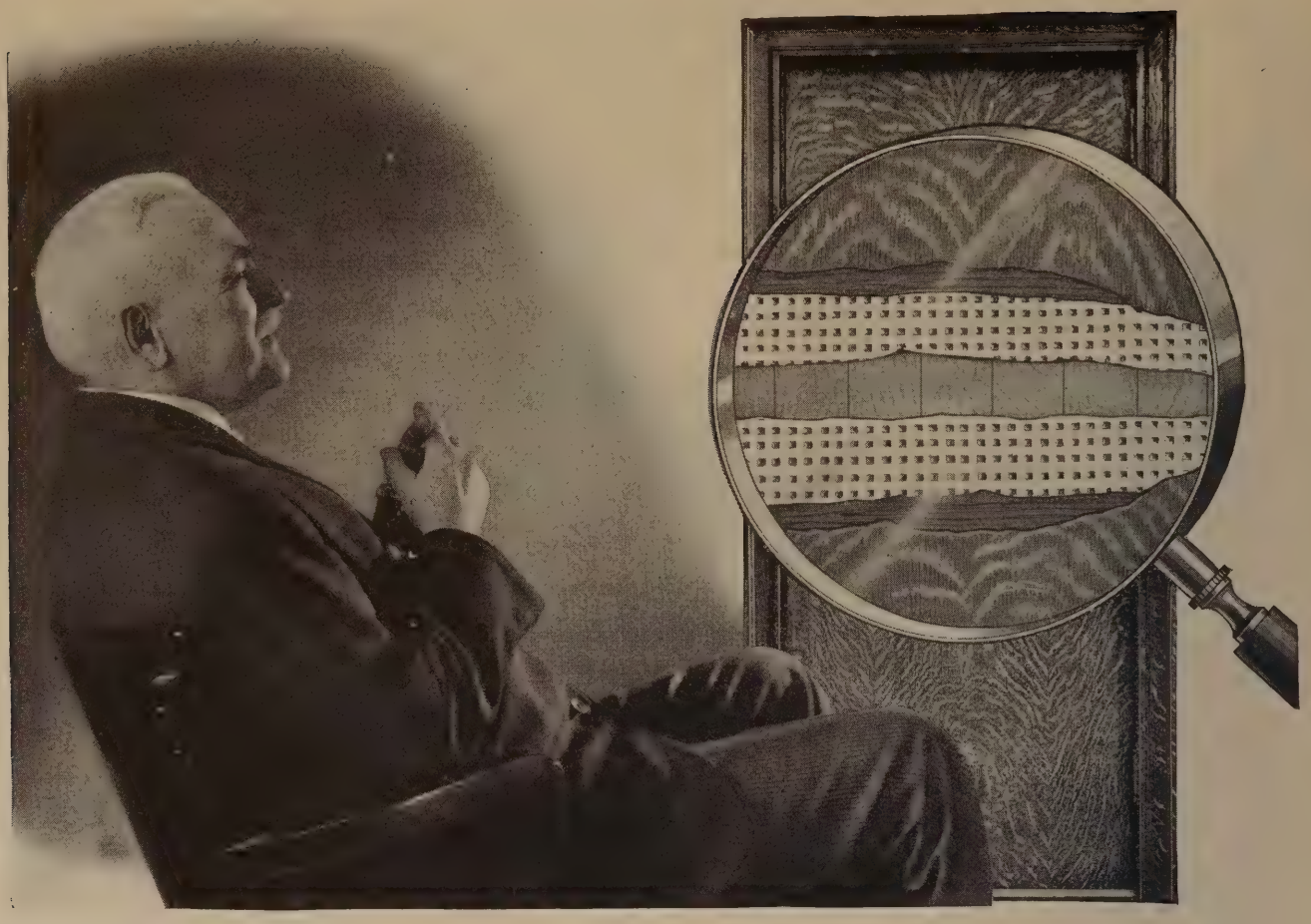

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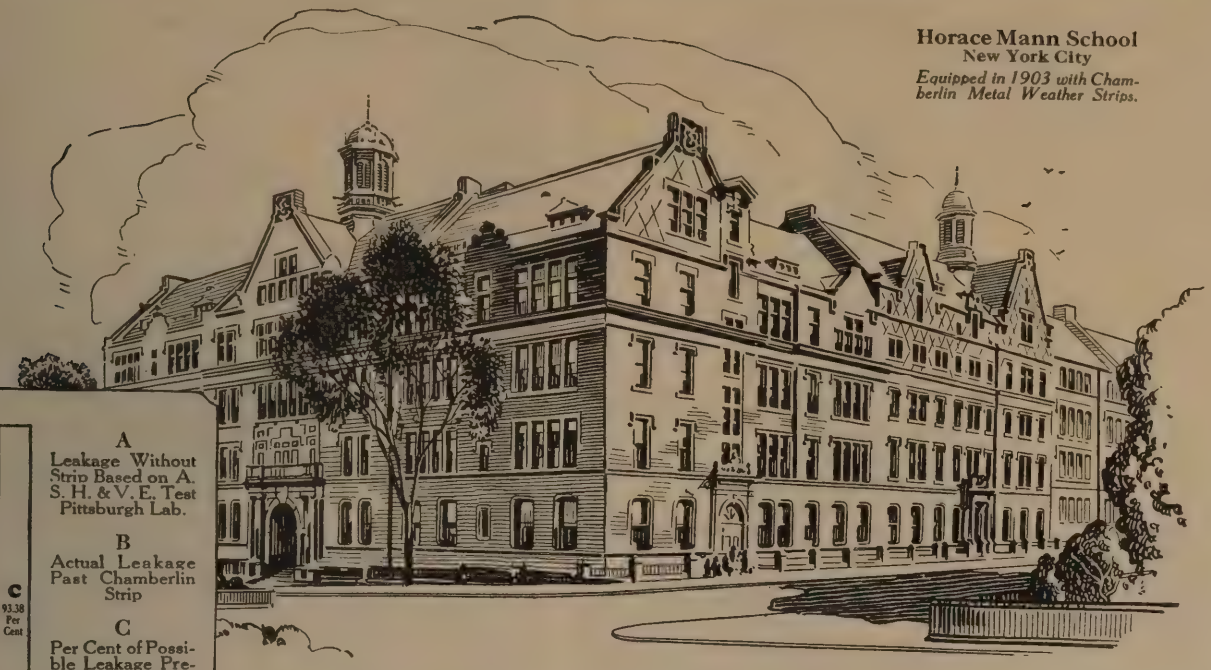
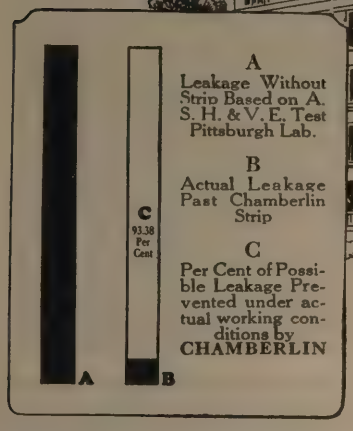
Chamberlin Strip in Use 22 Years Prevents 93.38% In-leakage of Air



Horace Mann School
New York City
Equipped in 1903 with Chamberlin Metal Weather Strips.


A
Leakage Without Strip Based on A. S. H. & V. E. Test Pittsburgh Lab.
B
Actual Leakage Past Chamberlin Strip
C
93.38 Per Cent
C
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Time Test Gives True Measure of Weather Strip Value

How Chamberlin Tests are Made

Chamberlin installation tests are made by placing an air collection chamber over the entire inside of a window. Opposite doors and windows are opened to aggravate circulation. The in-leakage past the strip is measured with an anemometer. Windows are not specially prepared for test and are always on the windward side of a building. In-leakage always includes leakages through the frame and pulley holes.

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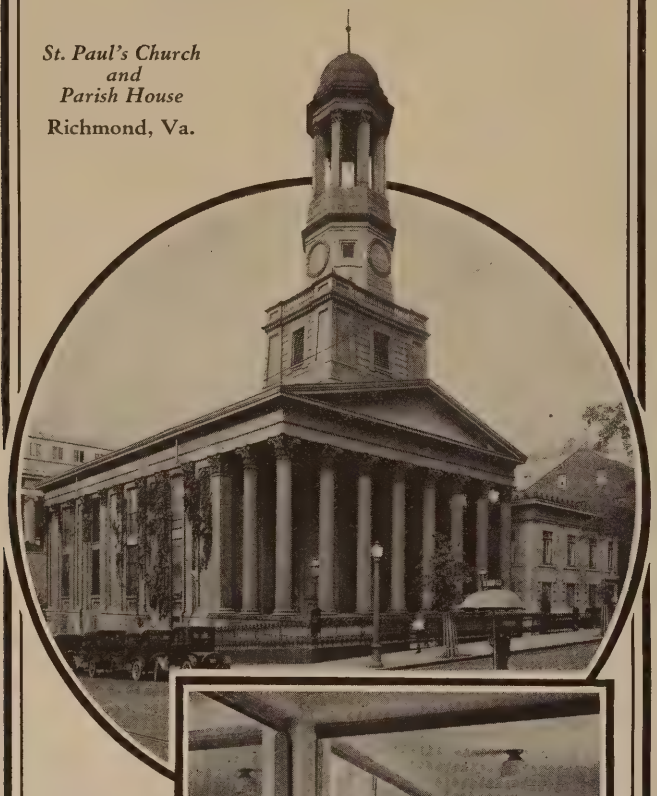

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Cur-ti-tions meet with favor, because they successfully solve the problem of dividing rooms in an efficient, satisfactory manner.

Cur-ti-tions fold against the wall or to a center post, out of the way when not in use. Quiet, easy, efficient operation is insured by perfected folding mechanism.

Write for detailed description and plans for including Cur-ti-tions in building plans.

CUR-TI-TION COMPANY
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AUSTRAL WINDOWS

VENTILATION WITHOUT DRAFT

AUSTRAL WINDOW CO.
101 PARK AVE., NEW YORK CITY

HOPE'S CASEMENTS

HENRY HOPE & SONS
103 PARK AVENUE NEW YORK

For window comfort and smart appearance

THE comfort of a great newspaper staff, working under high pressure 24 hours a day, as well as the imposing appearance so important to the home of a prominent journal, undoubtedly governed the choice of Lupton Double Hung Windows for this modern sky-scraper.

The dignified beauty, weather-tightness and easy operation of these galvanized steel-plate windows have led to their widespread adoption for many other high-grade office buildings, large and small, where efficiency and comfort must be attained.

Write for catalog 12-E

DAVID LUPTON'S SONS CO.
Founded 1871

2207 E. Allegheny Avenue Philadelphia

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LUPTON STEEL WINDOWS everywhere

The Elverson Building, Philadelphia. Rankin, Kellogg & Crane, Architects. Roydhouse-Arey Co., Contractors. Home of The Philadelphia Inquirer.

While various Lupton Steel Sash products are used throughout this enormous plant, we particularly wish to emphasize the specification of nearly 400 Lupton Double Hung Windows in the office elevations

843

The Meyer Kiser Bank, Indianapolis, Ind.
Vonnegut, Bohn & Mueller
Architects - Indianapolis

The Bank in ART METAL

CONCENTRATED in this banking interior, so expressive of dignity and permanence, is the wealth of our long and mature experience in the furnishing of banks.

The faithful execution of the architect's ideas lends its added charm to the bronze doors, screens and many of the accessories. Filing equipment, busses, desks and counter work, chosen from ART METAL stock equipment bring their cooperation to accurate, efficient work.

ART METAL engineers offer a veritable storehouse of practical information to the architect. We will be pleased to place at your disposal, without obligation, our cooperation on your next project in the form of suggestions, sketches or estimates.

Folding glass and bronze leaves that fold back as coin guards. Counter and cage equipment that makes bank work easier.

The booklet "The Banking House in ART METAL" has been of great interest to architects. We will gladly send you your copy on request.

Art Metal

JAMESTOWN NEW YORK

Steel and Bronze Equipment for Banks :: Steel Office Equipment

BAKELITE PLATES

on H&H

Switches and Convenience Outlets

Add finish to fine Interiors

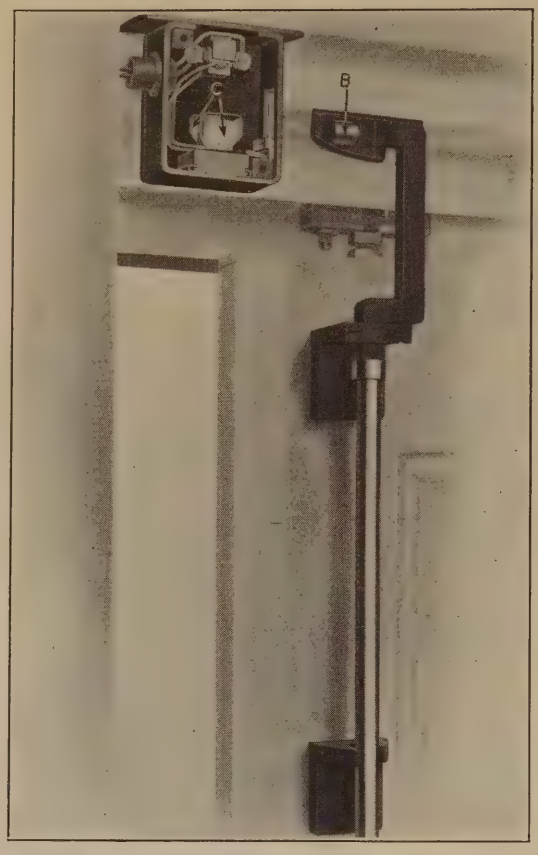
THEY add one more artistic finish to the many available in H&H Plates. And they fit in well with the harmonies of fine architecture.

They seem to lend a subdued refinement which blends with mahogany and silver, damask and silk things.

Compared with the Switch or Receptacle *back* of the Bakelite, plates are only Appearances. The mechanism is the thing.

It's still the thing you have in mind when specifying H&H Devices *with* Bakelite Plates. The plate data is yours on request.

THE HART & HEGEMAN MFG. CO. HARTFORD, CONN.



ES

Positive Electro—Mechanical Interlock

This device prevents the movement of the elevator until every door in the shaft is closed.

The door switches of the interlock are all in series with the elevator control circuit so that the act of opening any door opens the elevator control circuit and prevents movement of car until the door is closed.

Note that the interlock has but one movable part with no springs to get out of order.

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Thousands of these interlocks are in service giving perfect protection and satisfaction.

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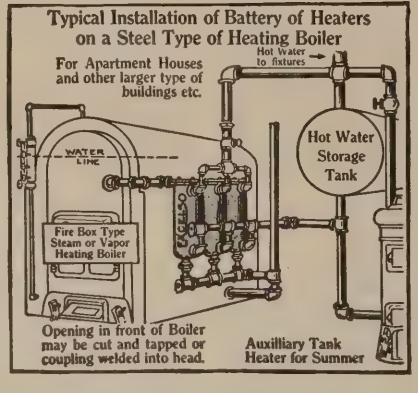
THE home owner or building owner appreciates the thoughtfulness of the architect who provides for domestic hot water supply, at practically no cost, during the heating season. The Excelso Indirect Heater saves the cost of gas or other fuel. Sizes range up to the larger buildings.

Known thoroughout the trade as the quality heater. Stocked everywhere. Write for specification details.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For Apartment Houses and other larger type of buildings etc.
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Opening in front of Boiler may be cut and tapped or coupling welded into head.
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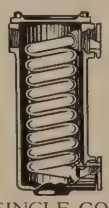

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Triple Coil Heaters, 600 and 800 gal. capacity, for large installations such as apartments, hotels, etc.

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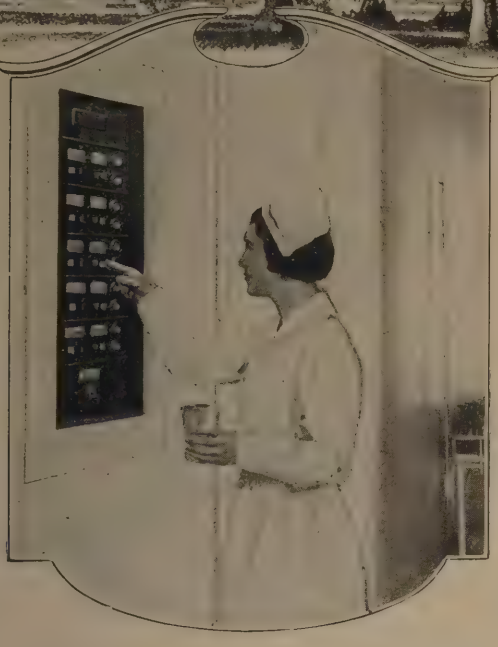

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Recognizing the diversity of both the architectural and the electrical requirements of modern building structures, the aim of the General Electric Company has been to design panelboards flexibly adapted to meet any reasonable requirement which is presented.

In the G-E panelboards are combined the result of extensive research, wide experience, careful selection of materials, modern manufacturing methods and accurate assembly.

Compact in form, neat in appearance, conservative in rating, G-E panelboards combine the ultimate in effective control of electric circuits with maximum safety for the operator. They are designed and built to fulfill the requirements of the Electric Safety and National Electric Codes.

Reference Bulletin GEA-11

General Electric supplies complete electrical equipment for all types of structures. In many notable buildings there are G-E Wiring Systems for the distribution of electric power and light, and apparatus for their control and protection—G-E Motors and Control for operating elevators, fans, pumps, compressors, etc. For your every electrical requirement G-E building equipment specialists will gladly recommend suitable apparatus. Ask your nearest G-E office for this service.

22-1

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL LARGE CITIES

AMBRAC METAL
eliminates upkeep

The new
Kawneer COMPANY
all-metal, rustless casement and weight-hung windows are fabricated from Ambrac Metal. They are permanently weather-tight.

AMBRAC Metal does not require paint, for it is rust-proof. This quality, together with its fine grain structure and natural smoothness of finish, makes the lubrication of movable parts unnecessary. Whether exposed to the weather or not, Ambrac Metal eliminates upkeep.

Ambrac Metal is composed chiefly of Copper and Nickel. It is a beautiful metal, white clear through with the surface assuming a light green tint on exposure. It is so ductile that it can be worked into any desired shape, yet it has the strength of mild steel, and will last indefinitely.

Ambrac Metal was developed by The American Brass Company to fill a long-felt need for a strong white metal highly resistant to corrosion. Architects find it especially appropriate for windows, door frames, grille work and general metal trim.

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from mine to consumer

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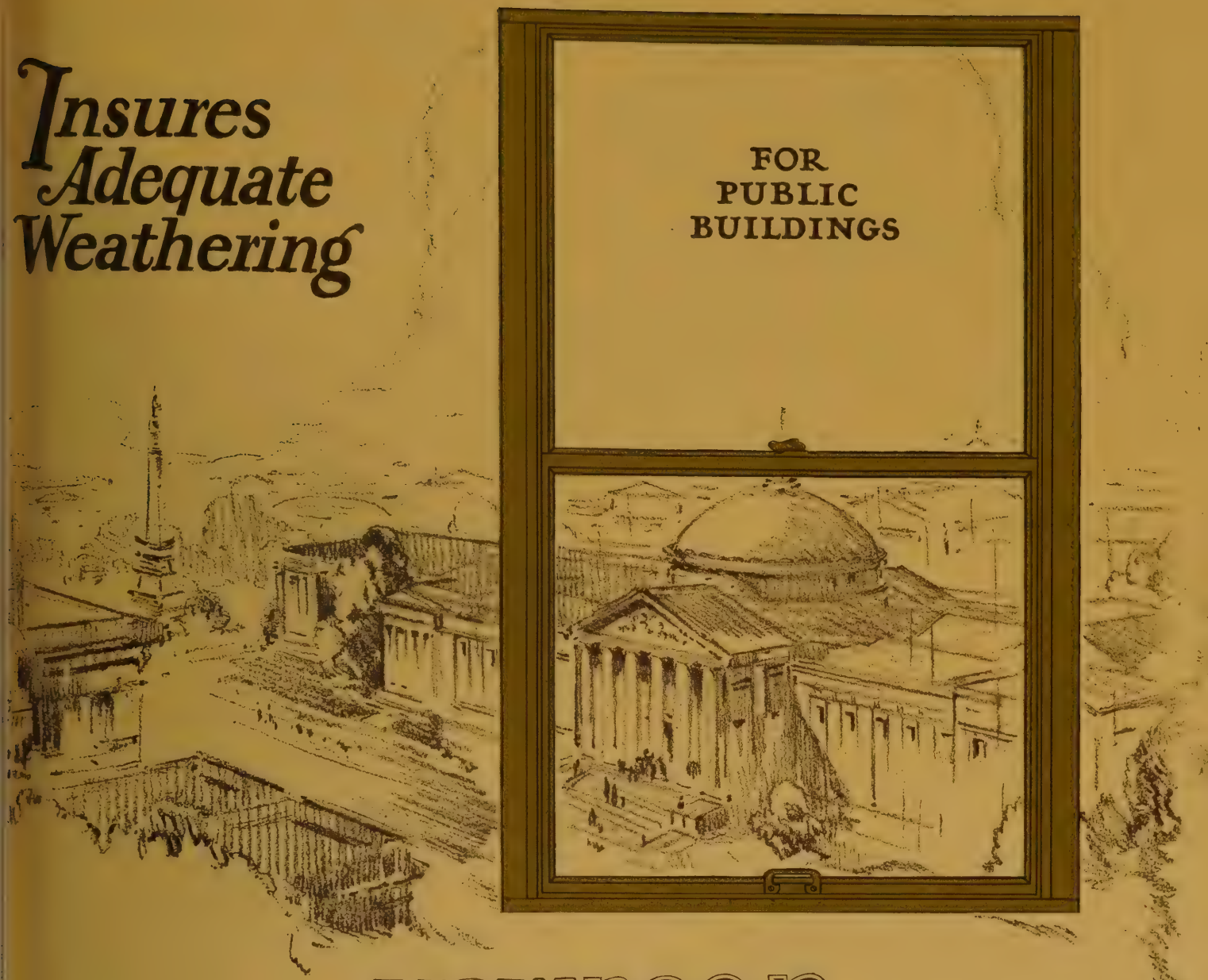
Insures Adequate Weathering



Kawneer
Solid Nickel Silver WINDOWS

More than 20 years ago The Kawneer Company designed and marketed the first Rustless Metal Store Front. Now The Kawneer Company is offering the first Rustless Nickel-Silver Window. Fabricated to size in the modern plant shown on the reverse side of this page, Kawneer Nickel-Silver Windows, in addition to many other features offer:

Permanency—being made of Nickel-Silver they will not rust nor corrode, in fact, will outlive the best constructed buildings.

Adequate Weathering—this is provided by the heavy gauge, specially designed, interlocking members.

Continuous Satisfactory Operation—this is assured by using Solid Nickel-Silver with all joints thoroughly welded.

Complete details and specifications will be sent upon request or full size models shown.

THE Kawneer COMPANY
NILES, MICHIGAN.

Home Offices and Factory
The Kawneer Company
Niles, Mich.

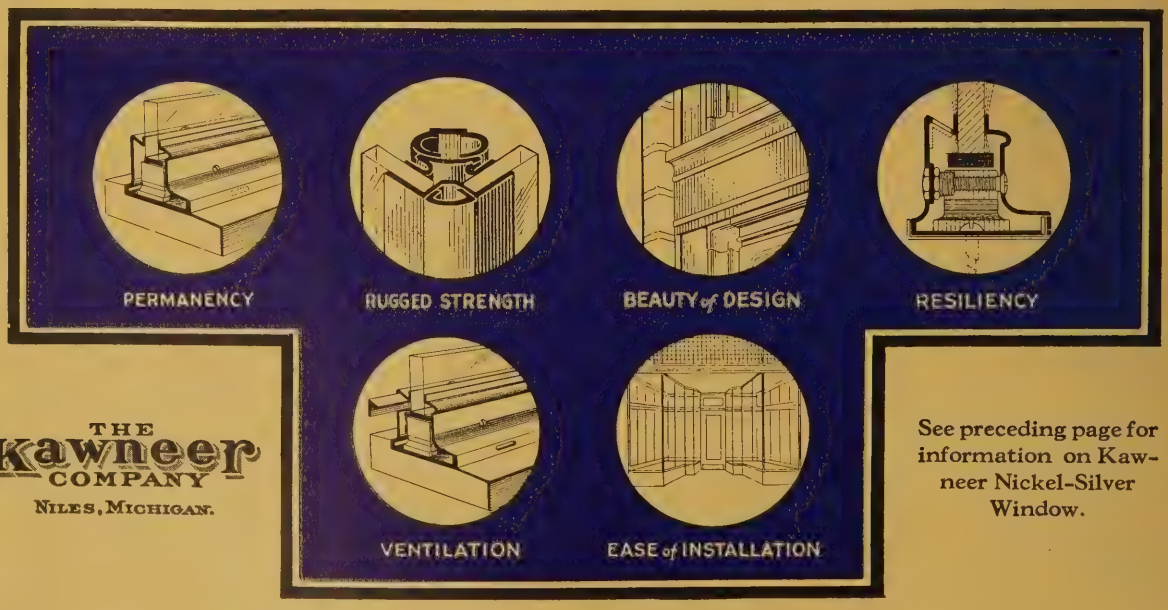
Kawneer
SOLID COPPER
STORE FRONTS

Where Kawneer Products are designed and manufactured

More than 260,000 Store Fronts Produced in Twenty Years

This large industrial plant is the result of Kawneer foresight and pioneering in Copper Store Front construction.

Designed by an architect who had specialized in the construction of business buildings, Kawneer Solid Copper Store Fronts met with immediate favor. Now you can name no line of business that Kawneer Fronts have not benefited. They have not only added beauty and visibility, but have actually stimulated sales for Drug, Shoe, Hardware, Motor Sales, Electrical, Furniture, Jewelry, Women's, Men's, and scores of other retail stores. Kawneer Booklets assist in laying out your Store Front plans. Write for copies today.



THE Kawneer COMPANY
NILES, MICHIGAN.

See preceding page for information on Kawneer Nickel-Silver Window.

Buildings Nos. 9, 10, 11
Hupp Motor Car Corp., Detroit
Everett Winters Company, General Contractors
Waterproofed with "R.I.W." Protective Products

"R.I.W." TOXEMENT is made in three forms, each performing a separate and valuable service:

"R.I.W." TOXEMENT* (A Gray Powder) for the integral waterproofing of mass concrete, for moulded concrete and for tile setting in cement grout.

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"R.I.W." TOXEMENT MORTAR PASTE* for the integral waterproofing of cement mortar and stucco; for cement mortar troweled on the outside of brick or rubble foundations.

Consult SWEET'S Catalog for complete specifications.

*Patented

Bring Concrete Construction in out of the wet!

ARCHITECTS realize that water is the great enemy of finished concrete construction. They guard against it by the use of "R.I.W." TOXEMENT — the scientific integral waterproofing compound.

Remember, too, that "R.I.W." TOXEMENT does more than waterproof. It saves time, labor and money on the job by lubricating the concrete and increasing its workability, plasticity and flowability. It also renders concrete nonporous and eliminates the necessity for extreme tamping and vertical chuting.

Ask Department F for full information.

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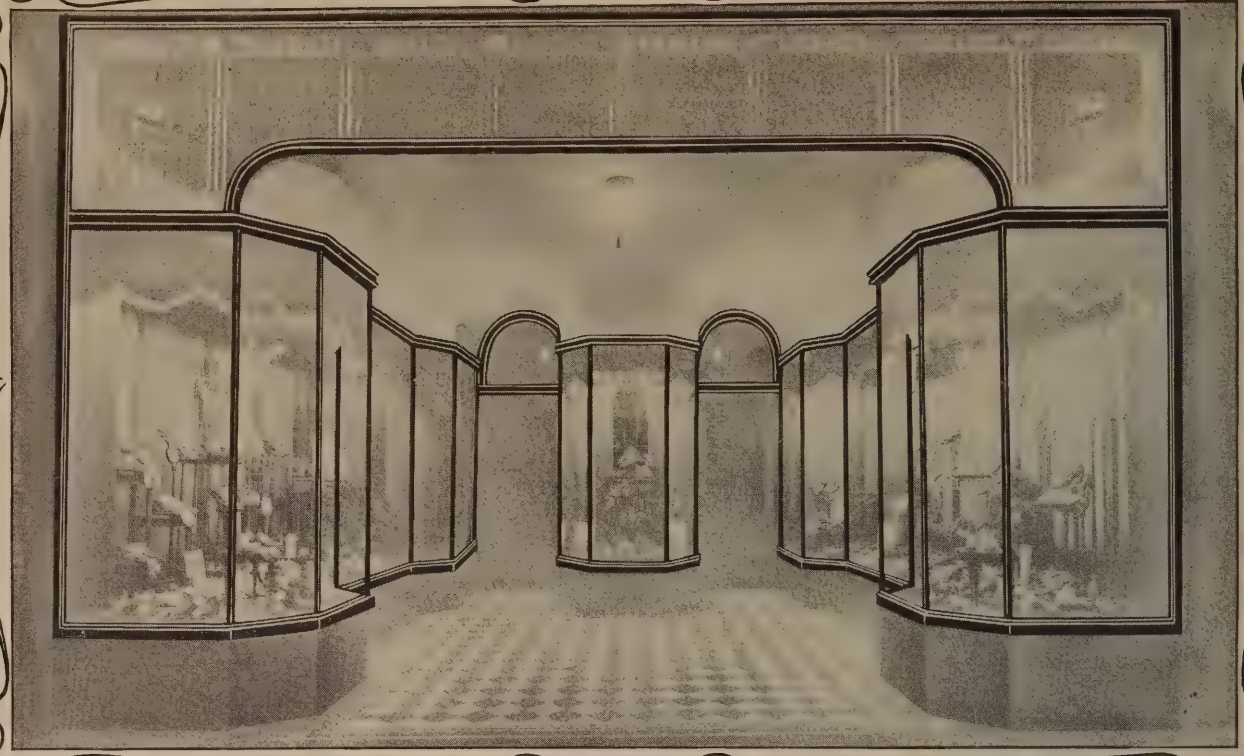
INCORPORATED

Technical and Scientific Paint and Varnish Makers
Since 1848
110 EAST 42nd STREET, NEW YORK, N.Y.
Opposite Grand Central Terminal
Works: Long Island City, N.Y.



Think of the Store Front As a Structural Unit—

A store front should be just as complete and unified a design as the building in which it is placed. There is the same necessity for structural strength of its members, for precise fit of part to part, for carefully planned, patented features to make it effective in performing its function, for permanent architectural beauty.

The Brasco name plate marks a store front manufactured and sold as a complete product. It is no different in this respect than your motor car or any other product built to render a definite service. You can check its features and specify with certainty of finding them in the finished job.

Brasco strength comes from its backbone of steel and its heavy gauge copper mouldings. *No greater safety* can be assured to glass than through the firm, supple and uniform wide grip held by *indirect screw pressure.* Ventilation—drainage—are more than ample. And Brasco fronts retain their original beauty indefinitely.

Our new catalog and full size details are now available to you without obligation, on request.

BRASCO MANUFACTURING COMPANY
5031 South Wabash Ave., Chicago

Brasco
COPPER STORE FRONTS

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Floors of Beauty at Low Cost

JUST because cost bars expensive floors from the specifications, beauty and durability need not be sacrificed. Colormix floors are the solution where the appropriation prohibits the use of costly materials and where ordinary concrete is too commonplace. It gives an atmosphere of quality heretofore attainable only with high-priced floors.

Colormix is a perfected concrete dye which is dissolved in the mixing water of the concrete. It produces a beautiful, one-toned concrete surface and, by increasing the tensile and compressive strength, Colormix makes the concrete better as well as beautiful.

The display room of a St. Louis interior decorator, where a Brown Colormix floor helps maintain the atmosphere of beauty and refinement.

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CLEVELAND, OHIO

Sales Offices in Ninety Cities

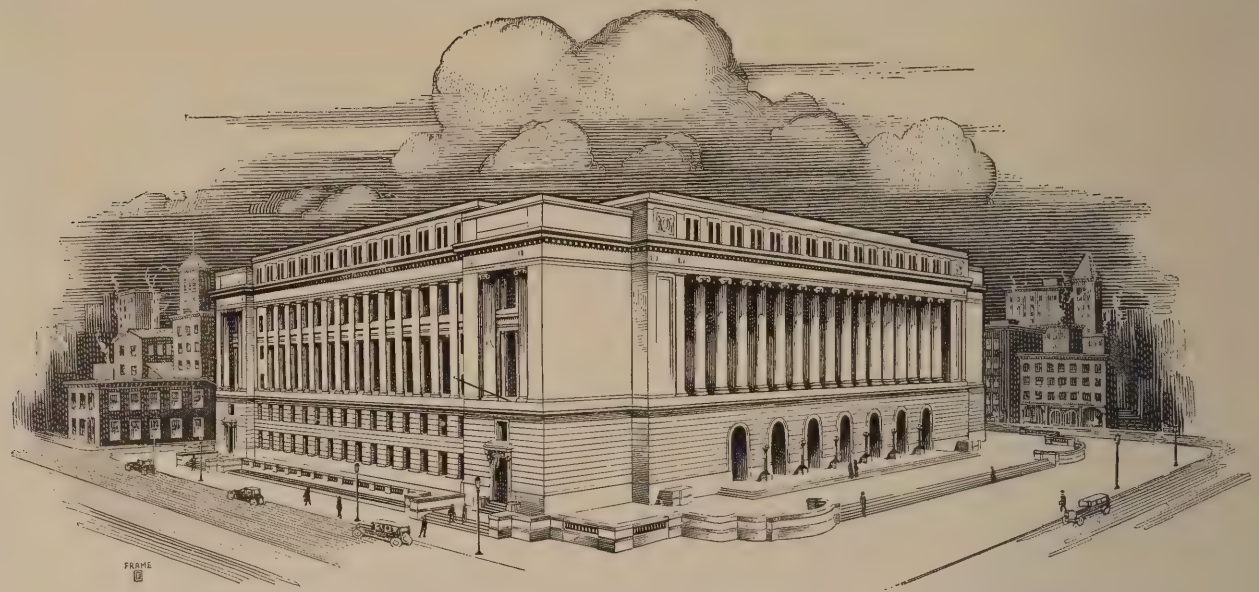
Factories at Cleveland, O., Irvington, N.J. and Granville, N. Y.

KEYSTONE COPPER STEEL

Your Measure *for* Sheet Metal

The real measure of value for sheet metal is the endurance test—*does it last?* For long service use KEYSTONE COPPER STEEL

BLACK AND GALVANIZED SHEETS, AND ROOFING TIN PLATES



The Hamilton County Court House, Cincinnati, Ohio. Keystone Copper Steel used in the heating and ventilating systems, by the Standard Engineering Company, Washington, D. C., Heating and Ventilating Contractors. Stewart A. Jellett Company, Philadelphia, Consulting Engineers.

The destructive enemy of sheet metal is *rust*. It is a well established fact that an alloy of copper gives to Steel Sheets and Tin Plates the maximum of *rust-resistance*. Keystone Copper Steel is unequaled for roofing, siding, spouting, gutters, culverts, metal lath and similar uses. It assures roofs and sheet metal work that will withstand the ravages of fire, wear and weather. Shall we send proofs from actual service tests? We manufacture Steel Sheets and Tin Plates for all purposes and specially adapted to the requirements of architects and contractors: Black Sheets, Special Sheets, Apollo and Apollo-Keystone Galvanized Sheets, Corrugated Sheets, Formed Roofing and Siding Products, Roofing Tin Plates, Bright Tin Plate, Black Plate, Etc. Sold by leading metal merchants. Our products represent the highest standards of quality and utility. Write nearest Sales Office for quotations and *"Testimony"* booklet.

American Sheet and Tin Plate Company

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DISTRICT SALES OFFICES

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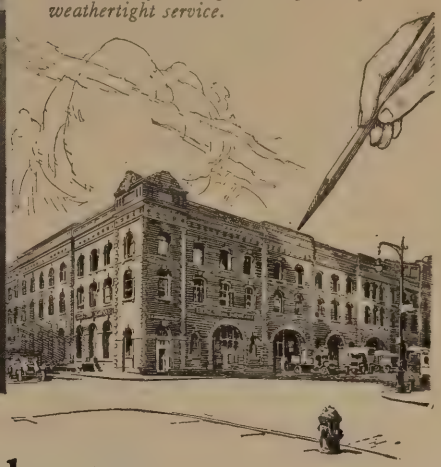
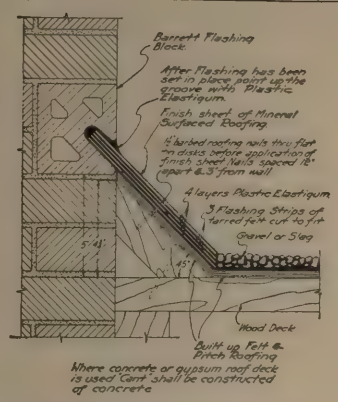
Laid 57 years ago

Laid in 1868, the 3½ acre Barrett Pitch and Felt roof on the New York Central Warehouse and Freight Depot, at Beach and Varick Streets, New York City, is still in good condition. Not one cent has been spent on this roof during its 57 years of weathertight service.



"This roof is off your mind till 1945 at least— the 20-year bond guarantees that"


Barrett Flashing Block
After Flashing has been set in place point up the groove with Plastic Elastigum
Finish sheet of Mineral Surfaced Roofing
4 layers Plastic Elastigum
3 Flashing Strips of Barrett felt cut to fit
Gravel or Slag
Wood Deck
Built up Felt & Pitch Roofing
Where concrete or gypsum roof deck is used Cant shall be constructed of concrete

Cross section showing Barrett Flashing Block installed in brick wall to provide a permanent, upwardly inclined flashing groove, which performs the function of a cap and weather protection for the flashing.

In the Barrett Flashing Block, the defects of the old types of flashings—which were responsible for many costly leaks—have been overcome.

Barrett Flashing Block is an integral part of the wall, each block displacing two brick courses. The block and cant construction permit of the installation of the flashing in a continuous unbroken plane, eliminating buckling, tearing, pocketing and special wear which so frequently occur where flashing materials are set in at right or acute angles.

Water cannot work its way in and run down the inside of Barrett Flashings; all joints are weathertight under every condition. The construction of Barrett Flashing Block and Flashing allows for settlement, shrinkage, etc.—there is no possibility of the flashings breaking or pulling away from the flashing groove.

For concrete wall construction, there is Barrett Flashing Form which has the same flashing groove incline and dimensions as in the Barrett Flashing Blocks. When brick and concrete walls join, both devices can be used to form a continuous flashing.

Send to The Barrett Company for full details of the Barrett Flashing System as contained in Vol. III of the Architects' and Engineers' Built-Up Roofing Reference Series.

You notice that the title of this advertisement reads "till 1945 at least." And there are sound, time-proved reasons for this—

A Barrett Specification Roof is bonded against repair and maintenance expense for 20 years. But even more important—

Records prove that Barrett pitch and felt roofs far outlast the 20 year period specified in the Surety Bond. Many roofs of this type, laid 30 to 40 years ago, are still giving staunch, weathertight service—this without repairs or maintenance.

In specifying a roof for a new building, you want to give your client roof protection that will definitely forestall disturbing reports of damage from leaks—unforseen expenditure for maintenance. . . . Which is precisely what you do when you specify a Barrett Specification Roof.

But the Barrett Specification Roof is *but one of a wide line of Barrett built-up roofs.**

Whether you want a roof constructed according to The Barrett Specification or your own specification—

Whether you want a roof for a new or an old building—

Three quarters of a century's experience—the experience of leading architects, engineers and contractors—has proved that any built-up roof should be of pitch and felt—and that both pitch and felt should bear the Barrett Label.

*Important! The Surety Bond is issued *only* on Barrett Specification Roofs which have been inspected by us during application. The Surety Bond Guaranty is assurance that the building is protected by a genuine Barrett Specification Roof.

THE BARRETT COMPANY
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IN CANADA:
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2021 St. Hubert Street, Montreal, Quebec, Canada

Barrett ROOFINGS

BARRETT SPECIFICATION ROOFS AND BARRETT SHINGLES

VERDELITE
Unfading Green Slate

H. O. Fullerton
Architect

RESIDENCE OF B. C. KING, ESQ.
Euclid Heights, Ohio

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Cleveland, Ohio

VERDELITE Unfading Green Slate is a Quality product possessing an architectural texture of rare beauty. Its color never fades or weathers.

Artistic roof treatment may be secured either by laying up Verdelite in graduated thicknesses or uniform thickness in graduated lengths.

Verdelite is produced at the Penryhn quarries in the state of Vermont and sold exclusively by us.

GARDEN WALKS :: SLATE TILE :: BASE :: COPING :: STEPS :: ETC.

PENNA. OFFICE
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EASTON, PA.

J.W. WILLIAMS SLATE Co.
(A VERMONT CORPORATION)
PRODUCERS OF HIGHEST QUALITY
SLATE ROOFS AND SLATE SPECIALTIES

VERMONT OFFICE
POULTNEY
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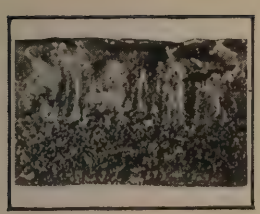
Architectural Service Department: 103 Park Ave., New York

The Magic Touch of Preston Shingles

LET us send you a fascinating book which shows in colors how Preston Shingles can transform the appearance of a house and make it distinctive.

The soft, mellow tints, due to the natural colors of the surfacing, harmonize with any type of architecture, whether it be a mansion costing many thousands or a simple cottage.

Preston Shingles are made in three thicknesses: Heavy Standard, Extra-Heavy and Massive. The Massive is much thicker than any other slate-coated asphalt shingle on the market, being approximately one-third thicker than a Standard No. 1 slate shingle. This not only adds to the life but also to the appearance of a Preston Roof. In addition to the Sunset blend, Preston Shingles are made in three solid colors: red, blue-black and green. Write us today for the book "The Magic Touch of Preston Shingles."



MICROSCOPIC ENLARGEMENT

THE wearing qualities of Preston Shingles are dependent not only on the quality, but also on the quantity of asphalt which each shingle contains. If you examine the edge of a Preston Shingle you will notice that it is practically a solid body of asphalt. This feature of Preston Shingles accounts for their remarkable wearing qualities.

KEYSTONE ROOFING MANUFACTURING COMPANY
Dept. D8, York, Pennsylvania

Preston ROOFING

Caen Stone Cement

THE dignity of a masonry interior with the warmth of natural Caen Stone is obtainable through the use of French imported Caen Stone Cement.

Twenty page book sent on request
Size 8½x11
AIA File No. 21-b-3

Exclusive Agents

PALMER LIME & CEMENT CO.
103 Park Avenue
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THE ONLY SAFE WATER IS A STERILIZED WATER

SWIMMING POOL SANITATION

The Swimming Pool at the U. S. Naval Academy, Annapolis, Md., where W & T Apparatus is Protecting the Health of the Bathers

The W & T Process of Chlorination, used by over 200 Pools, is the least expensive and most efficient method of Swimming Pool Sterilization.

A sterilized water cannot cause disease.

Technical Publication No. 21, containing full data and specifications will be mailed on request

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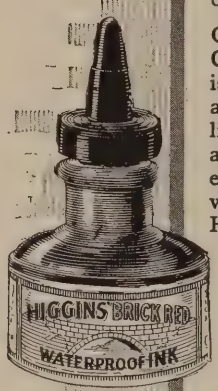
(D)

BRICK RED



ONE of the family of HIGGINS' Drawing Inks designed to fill a definite draughting need.

Of true brick color, HIGGINS' Brick Red Drawing Ink is used to indicate brick work and cross sections, either in line or tint. It is transparent and consequently ideal for elevations, perspectives, etc., where it may be laid over HIGGINS' Waterproof Black.

Try it — if you haven't already done so.

Made Only By

CHAS. M. HIGGINS & CO.
271 Ninth St., Brooklyn, N.Y.
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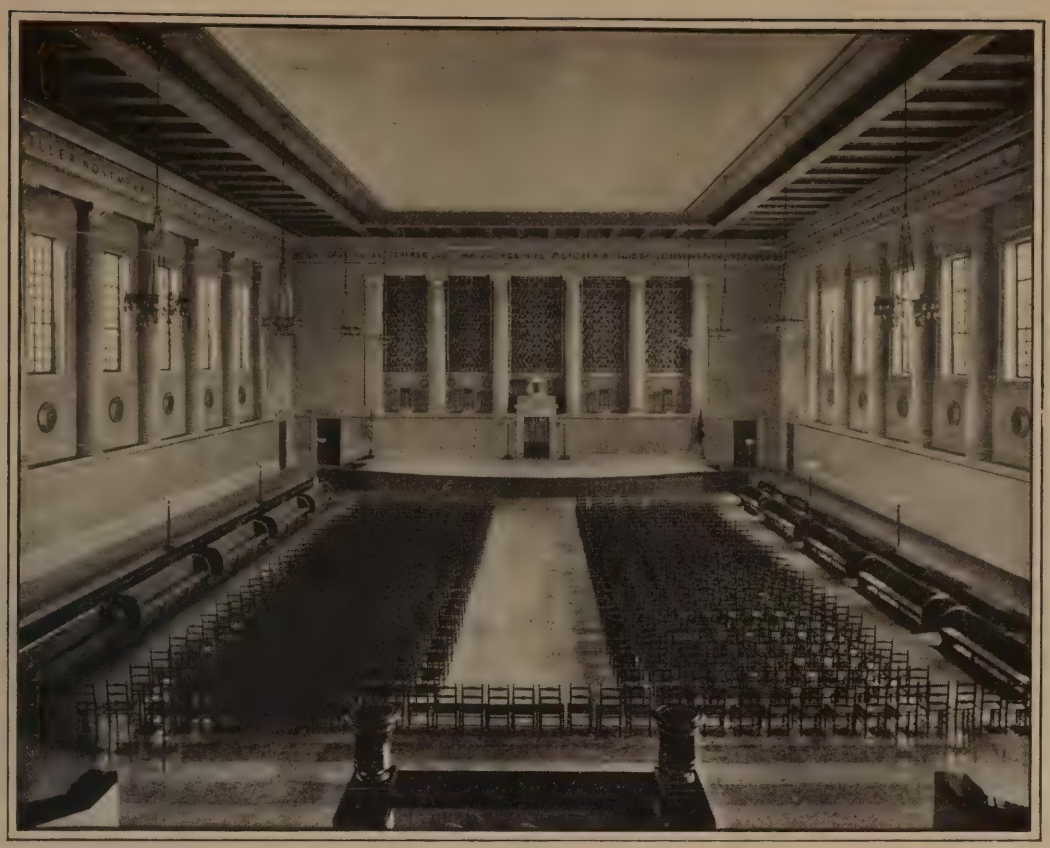
HIGGINS' Drawing Ink



Auditorium, Baltimore War Memorial, Baltimore, Md. Johns-Manville Acoustical Treatment

Let ACOUSTICAL CORRECTION

give you a freer range of design

LET no fear of acoustical imperfections limit your auditorium and building designs. Johns-Manville Acoustical Engineers can give you expert opinions on the acoustical properties of the buildings you plan, suggest modifications that will improve them, and enable you to overcome the acoustical difficulties of an otherwise perfect architectural conception.

Safeguard your designs by calling on these engineers during the plan stage. You will be under no obligation and you will be assured that no acoustical imperfections will mar the completed buildings.

Johns-Manville Acoustical Correction is the result of the researches of the late Professor W. C. Sabine of Harvard University and his direct cooperation with Johns-Manville, Inc. It includes treatments for every type of building using Nash Tile, Akoustolith Plaster and Asbestos Hair Felt with painted muslin or Kribble Cloth finish.

Through Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS
FIRE PREVENTION PRODUCTS

JOHNS-MANVILLE
Acoustical Correction

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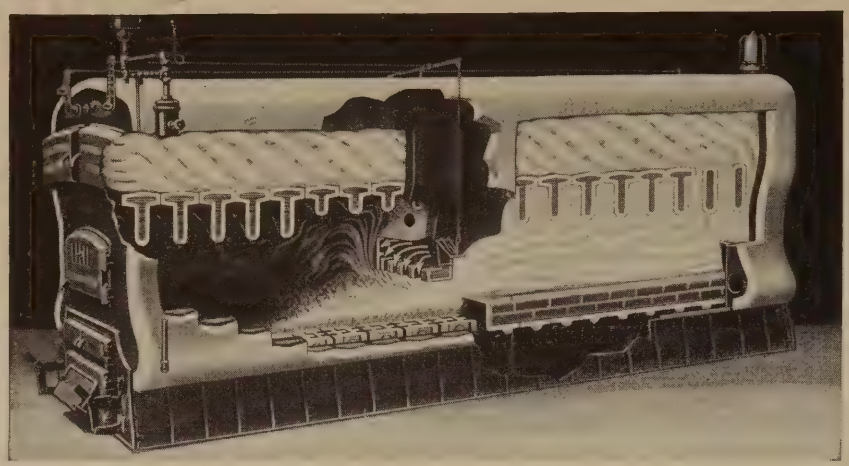

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THE STANDARD OF SMOKELESS BOILERS

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SUPER-SMOKELESS Boilers burn soft coal not only without smoke, but with remarkable economy and efficiency. This is accomplished by admitting heated air, on the principle of the Bunsen Burner, igniting the volatile gases, and utilizing smoke and soot as fuel of great heating value. The smokelessness and economy of SUPER-SMOKELESS Boilers have been demonstrated in thousands of installations.

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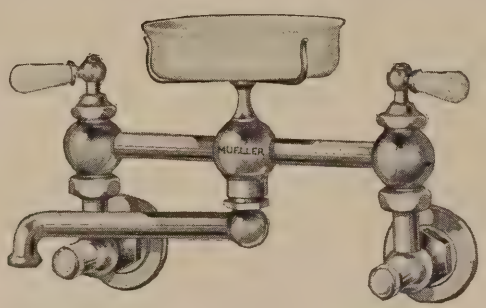

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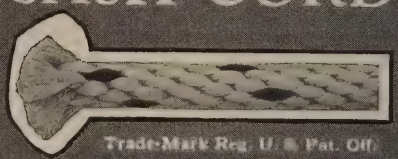

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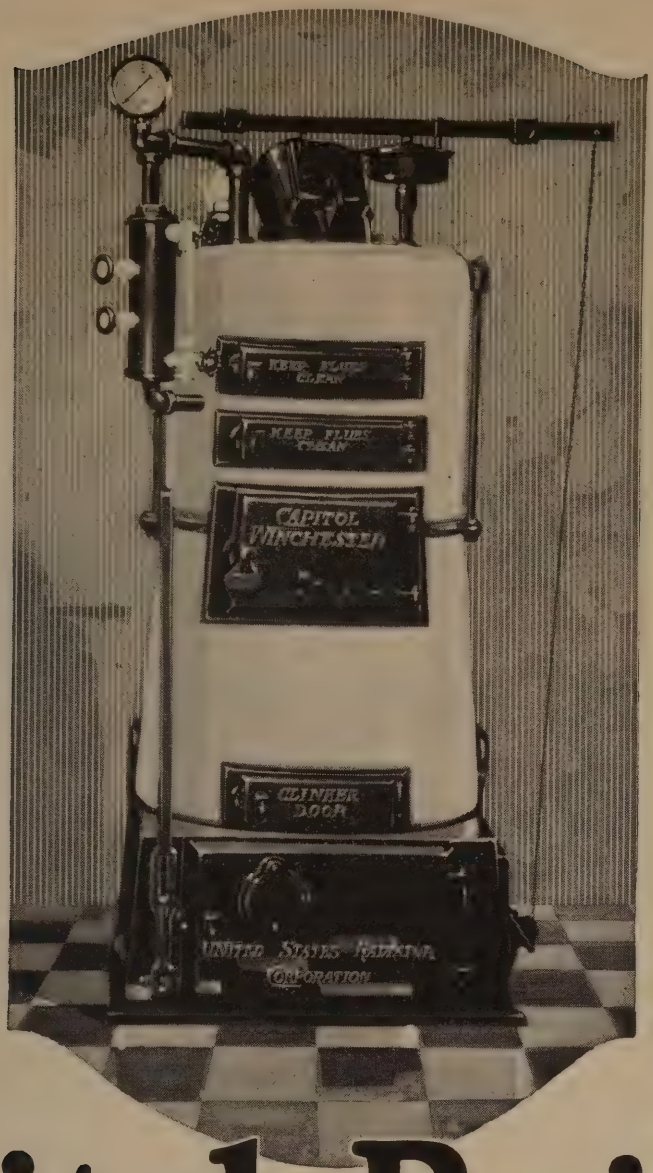

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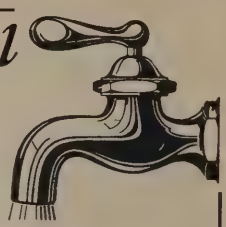

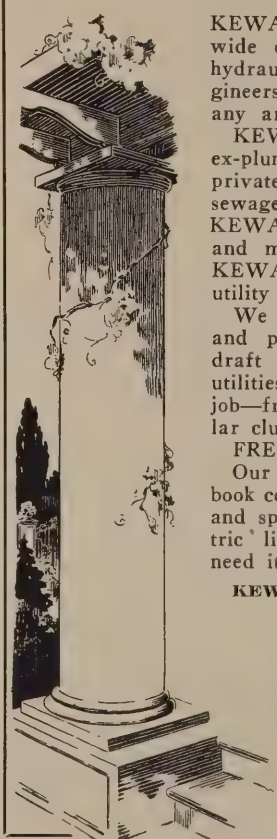

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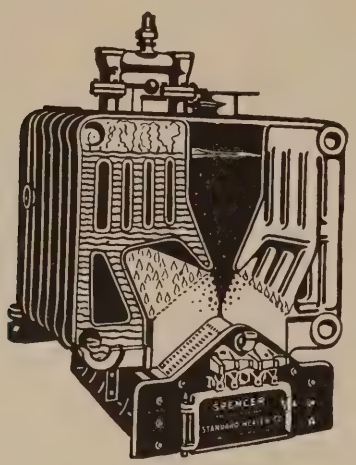

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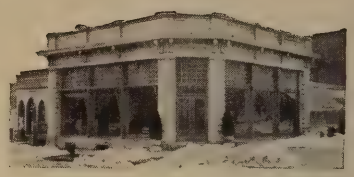

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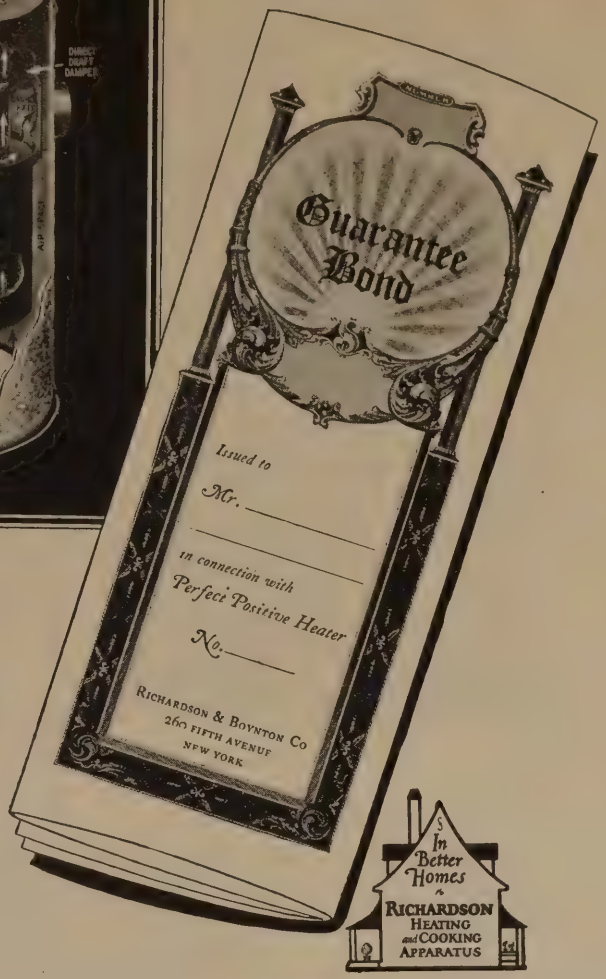

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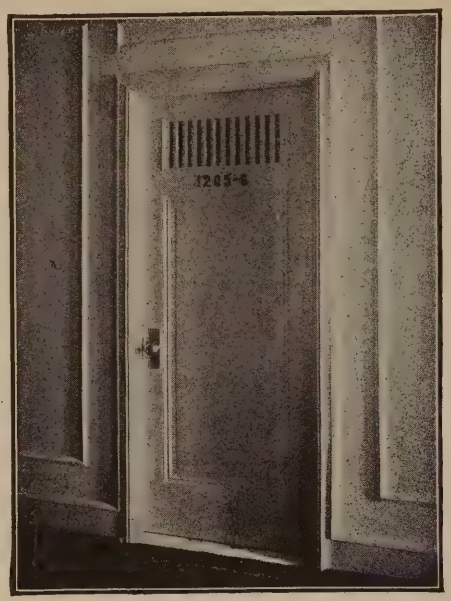

THE problem of ventilating is complicated by the fact that it must be done artistically as well as adequately. With the old method of employing the unsightly transom, this is practically impossible.

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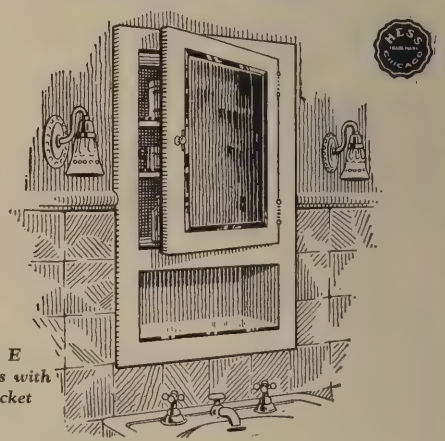

STYLE E to recess with open pocket below.

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Ask us to show you a sample— without expense to you. You judge if we are not right.
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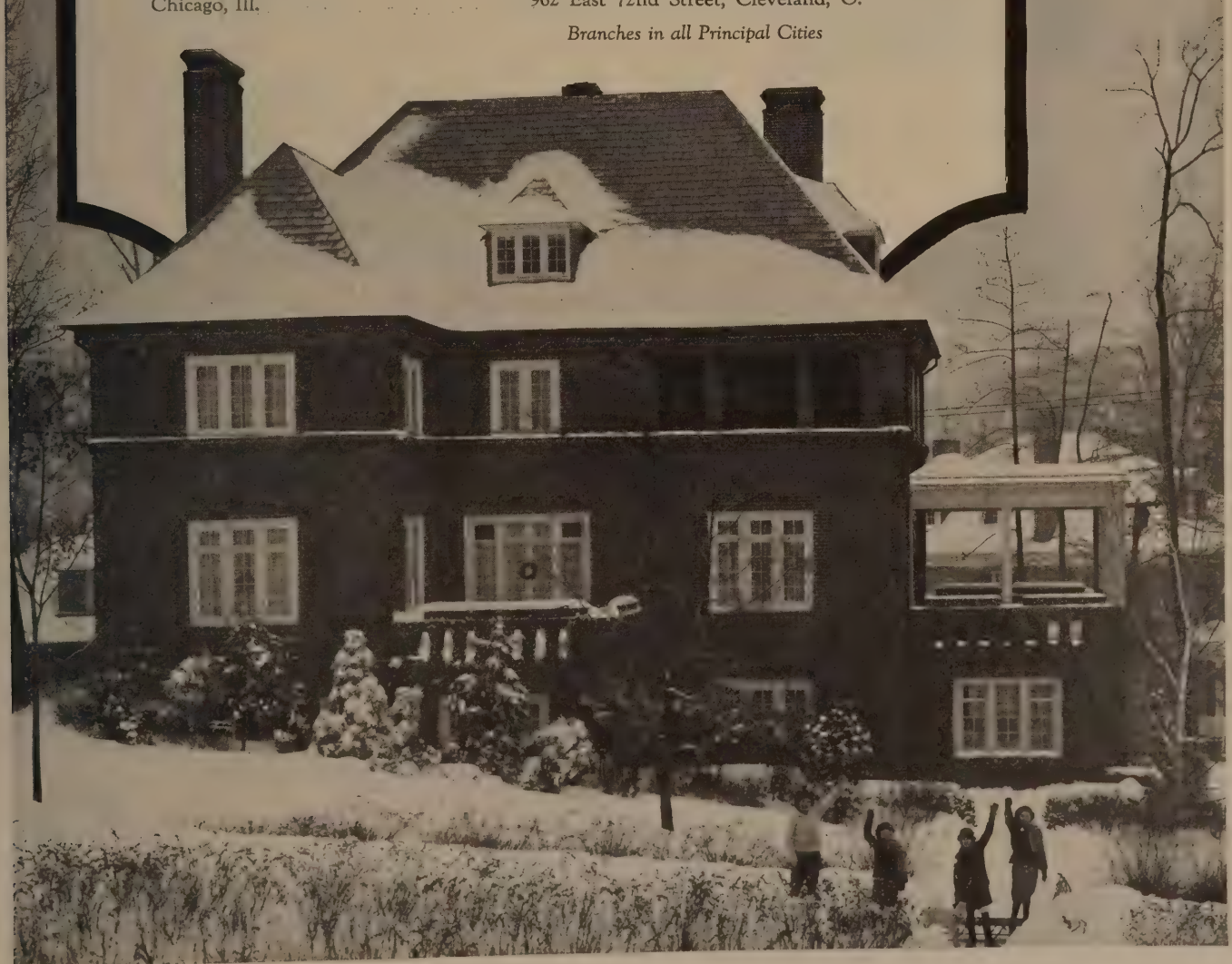
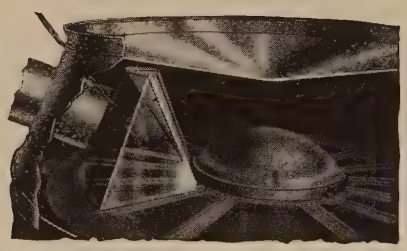


YOU are looking into the Kelsey fire-box (from the bottom) with the famous zig-zag tubes—all sides exposed to heat—a big saving in coal.

The Kelsey Warms That "Hard-to-Heat" Room



No matter what its location or how hard the wind may be blowing.

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Two or more of the famous zig-zag heat tubes are capped and connected with warm-air pipe going to room. See illustration. *All* heat from these tubes goes into that room. It's always warm and comfortable in any weather, and there's ample capacity in the Kelsey for heating the rest of the house.

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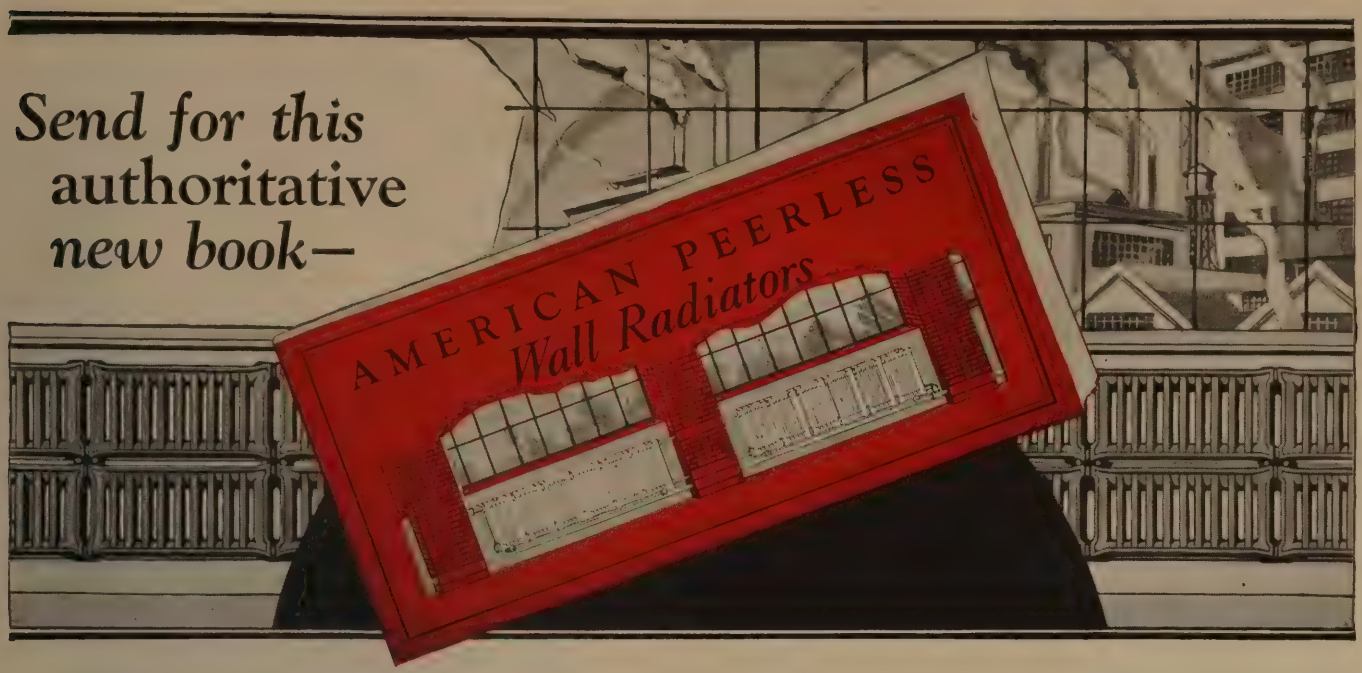
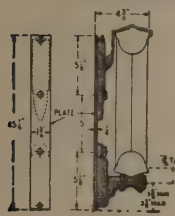
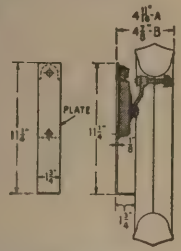


ARCO Adjustable Wall Brackets

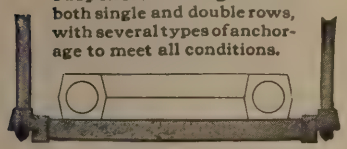


ARCO Bracket, No. 1 Single, for all "A" Peerless Sections; other sizes for "B" Sections and for double row sections are given in booklet.

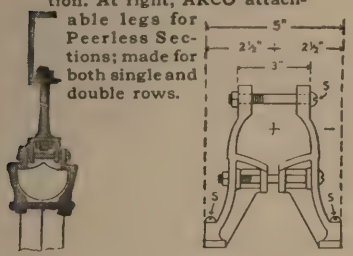


Another type of ARCO Bracket, for 5, 7 and 9 square foot sections in single row only

ARCO Trapeze and Slip-End supports, used for ceiling suspension. Designed for both single and double rows, with several types of anchorage to meet all conditions.



At left, ARCO Pendant Flight attached to Peerless Wall Section. At right, ARCO attachable legs for Peerless Sections; made for both single and double rows.



EVERY ARCHITECT, Heating Engineer and Specification Writer will want this valuable new book for specification work. It contains the latest authoritative data on wall radiation, its many and varied uses and its specification for each particular requirement.

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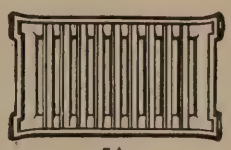
Peerless Wall Radiators are made in five sizes

5A



7A

9A

9B

7B

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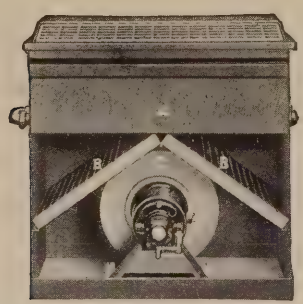
The Architect—Moulder of Destinies



Open view of UNIVENT *illustrating*

A.—Copper radiator without a single joint, absolutely leak-proof.

B.—Air filter easily removable for cleaning.

C.—Cone type fan specially insulated for quiet operation.

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(6)

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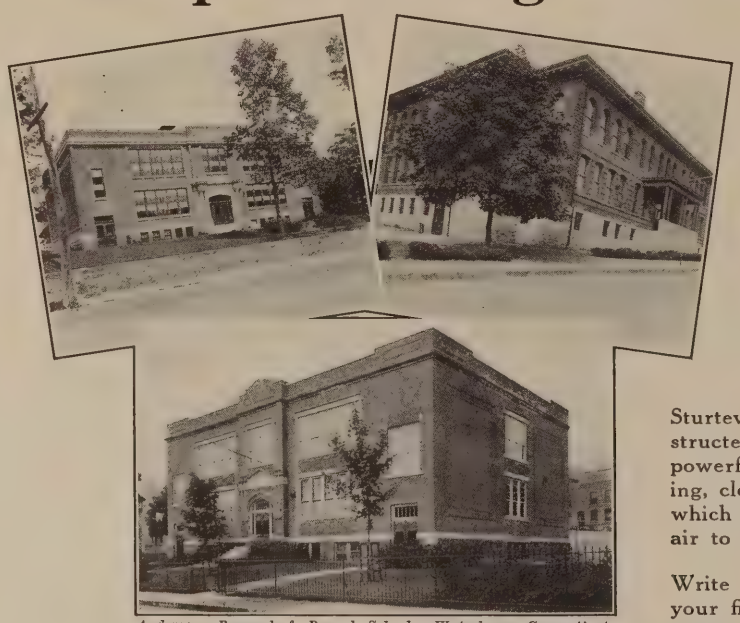

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When cleaning equipment was needed for the Anderson, Barnard and Begnal Schools, the Department of Education, Waterbury Connecticut, selected Sturtevant Stationary Suction Sweepers. For over six years these sweepers have been giving most satisfactory service, and cost for maintenance has been practically nothing.

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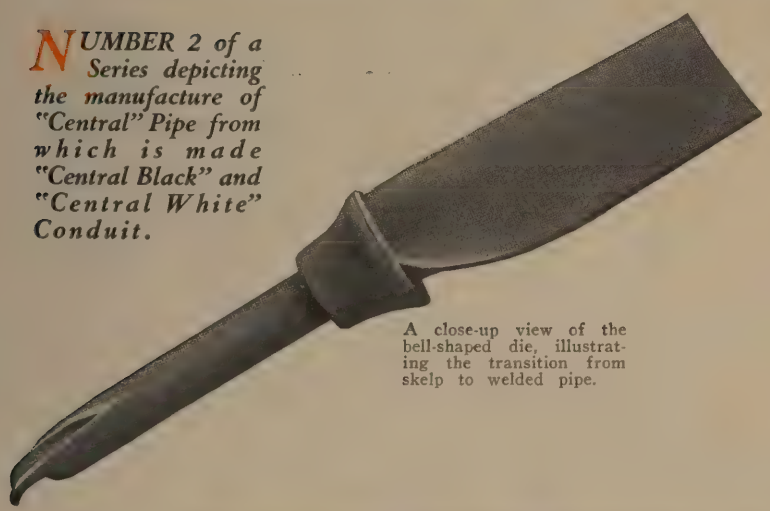
1359

Drawing and Welding Skelp into "Central" Pipe

The 2nd Operation in the Making of "Central" Pipe from which is Made "Central Black" and "Central White" Conduit

NUMBER 2 of a Series depicting the manufacture of "Central" Pipe from which is made "Central Black" and "Central White" Conduit.

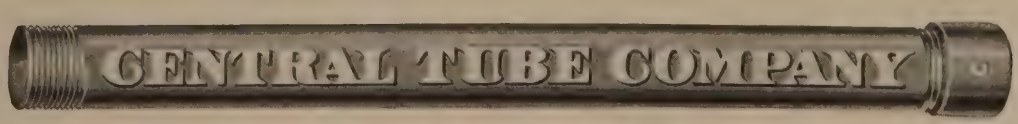


A close-up view of the bell-shaped die, illustrating the transition from skelp to welded pipe.

AFTER skelp has been heated to the fusing point the formed end of the skelp is gripped with tongs, over which is passed a bell-shaped die. The tongs are then secured to a continuous traveling chain, the die is caught in a holder, and the tongs and skelp are successively drawn through the die, which forms the skelp into a cylinder and the heated edges, being pressed together, are welded. The insert illustrates the transition from strip to welded pipe.

The Draw-Bench, here illustrated, travels transversely of the furnace, so as to draw the heated strips successively from the furnace as they reach the required temperature.

Particular care in heating the skelp to the exact temperature required, and the subsequent slow cooling, are responsible for the easy-working qualities of "Central" Pipe and "Central Black" and "Central White" Conduit.



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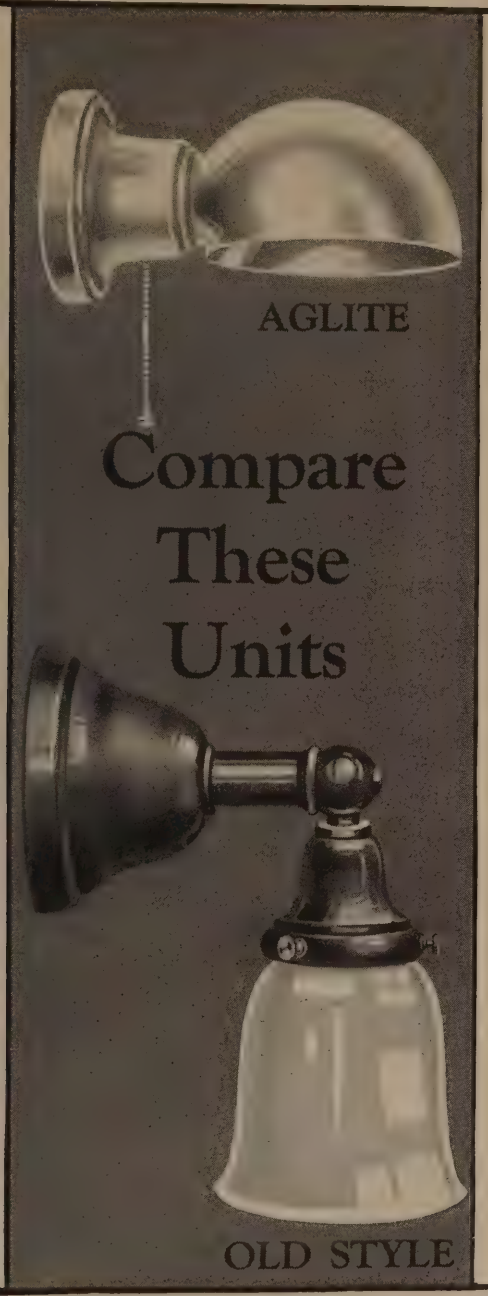

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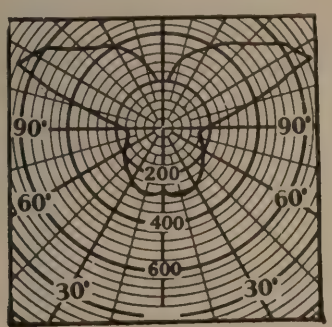

The diagram shows the characteristic distribution curve of this unit.

Architects from all parts of the country have given an enthusiastic welcome to Holophane Period-Luminaries, in which are combined Holophane prismatic lighting units, long famous as the most efficient lighting product, with beautiful period fixtures, the work of master craftsmen in metal.

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With Filterlite as the core and a carefully detailed design as a guide, skilled craftsmen work in metal beautiful period fixtures such as this.

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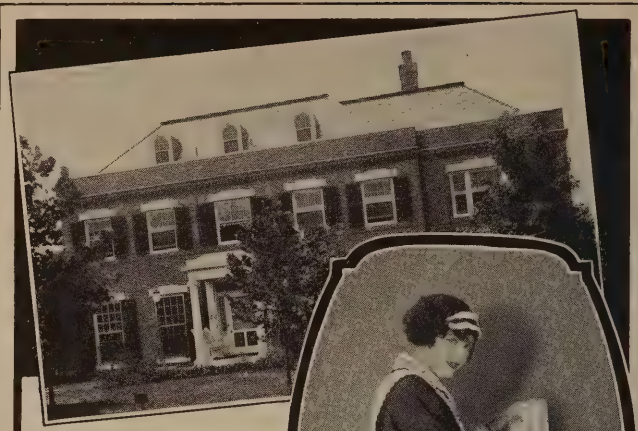
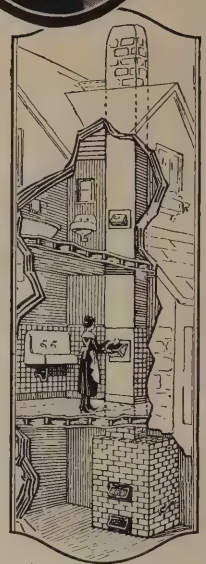


Kernerator-equipped residence of Stanley Goldman, Cecil Place and University Lane, St. Louis, Mo. Architects Study & Farrar; Builder John Craig.

Architects Study & Farrar Create for Contentment

BEAUTY of line and form must grow hand-in-hand with *liveability* in the homes planned by Studv & Farrar of St. Louis.

Hence the time-tried Kernerator, which banishes the garbage nuisance for all time, and achieves a new neatness of house and yard, is almost a standard specification in work from the boards of this well known firm.



Here is a typical Kernerator installation. It costs no more than a good radio set, and gets rid of the garbage nuisance forever.

No Upkeep Cost— No Fuel Used

As shown, the Kernerator consists of a brick combustion chamber at the base of the regular chimney, with a separate flue, having hopper doors conveniently located in or near the kitchens above. *All* waste—garbage, sweepings, tin cans, bottles, papers, magazines—trash of every sort—is dropped through the hopper door, then forgotten. An occasional lighting burns everything but non-combustibles, which are flame-sterilized for removal with the ashes.

For additional data, consult Sweet's (1924) Pages 2536-37, or write

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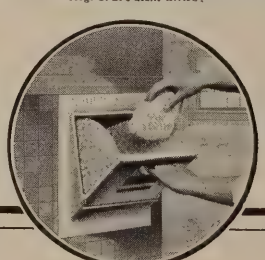

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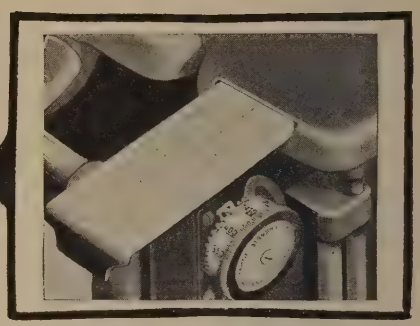

The Smoothtop Patented Chart gives the temperature and time required for oven cooking

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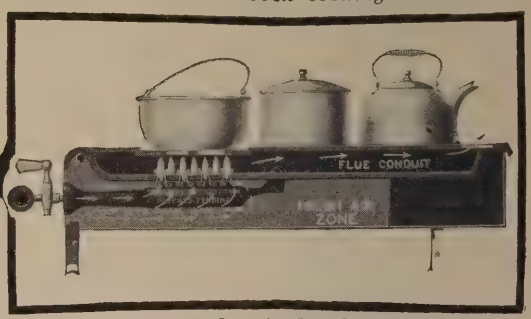

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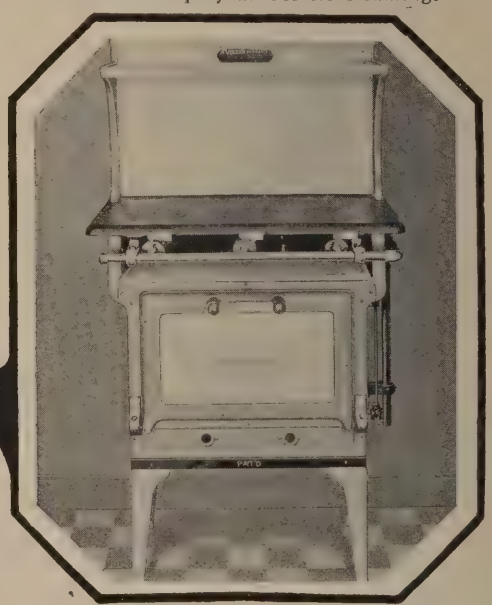

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For specific data see 19th edition, Sweet's Catalog, pages 2497-2506 inclusive. Additional information sent on request.

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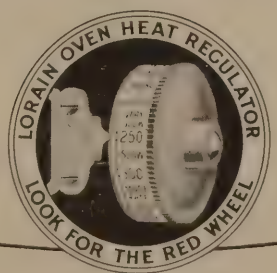

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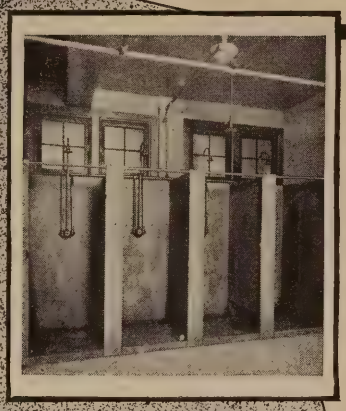

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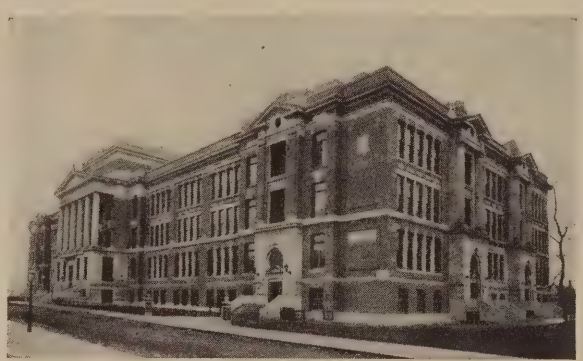

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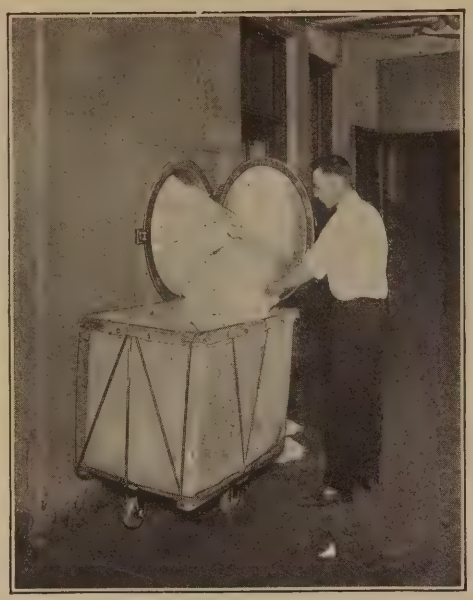

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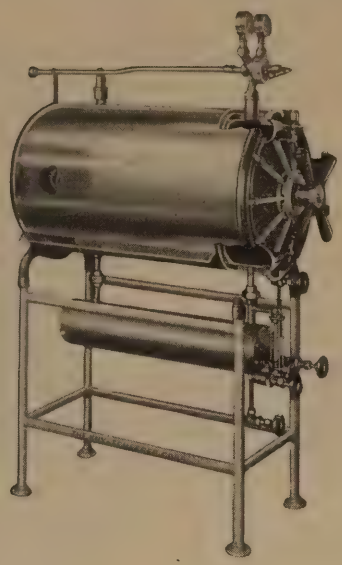

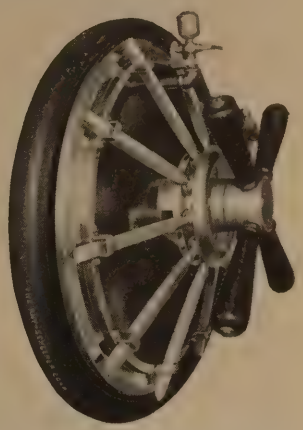

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Kny-Scheerer Products are built to serve —fundamentally correct.

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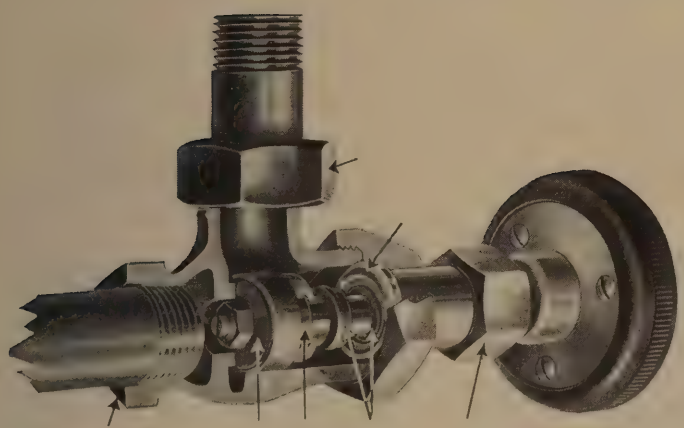

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End ring (of Bronze Composition with integral extended bosses for attaching Valve above and Generator below).

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119 Seventh Avenue (Dept. 101) New York. N.Y.

Let in the light—Shut out the glare

The United States Bureau of Education; The National Committee for the Preventation of Blindness; The Illuminating Engineering Society of New York, and various other organizations, in their study of the problem of lighting a room, have carefully considered the matter of window shades. They have all agreed that:

Window shades must be of such material and color as to afford proper diffusion of light. They must be so arranged that they can shade just the part of the window that requires shading. And they must eliminate the glare — either direct or refracted rays.

Athey Perennial Window Shades

Athey Perennial Window Shades meet every one of these requirements.

They are made of a special weave, ***translucent*** Herringbone cloth, which diffuses a soft light.

They can be raised from the bottom, or lowered from the top (folding like an accordian). Hence they can be quickly and easily adjusted to shut out the sun's glare, without making parts of the room dark.

And on top of these distinct advantages they last so many years that they actually are the **lowest priced shades you can buy.**

Make Awnings Unnecessary Afford Perfect Ventilation

With Athey Shades the expense and fire hazard of awnings is eliminated, because Athey Shades do everything that awnings can do.

By raising the shades to the top, and lowering to about 10" from the window stool, and lowering the upper sash about 10", the sun's rays on the glass superheats the air between the glass and the shade. This superheated air must pass up and out above the sash, drawing the old air from the room and **automatically providing ventilation.**

Athey Products

SEE OUR CATALOGUE IN SWEETS

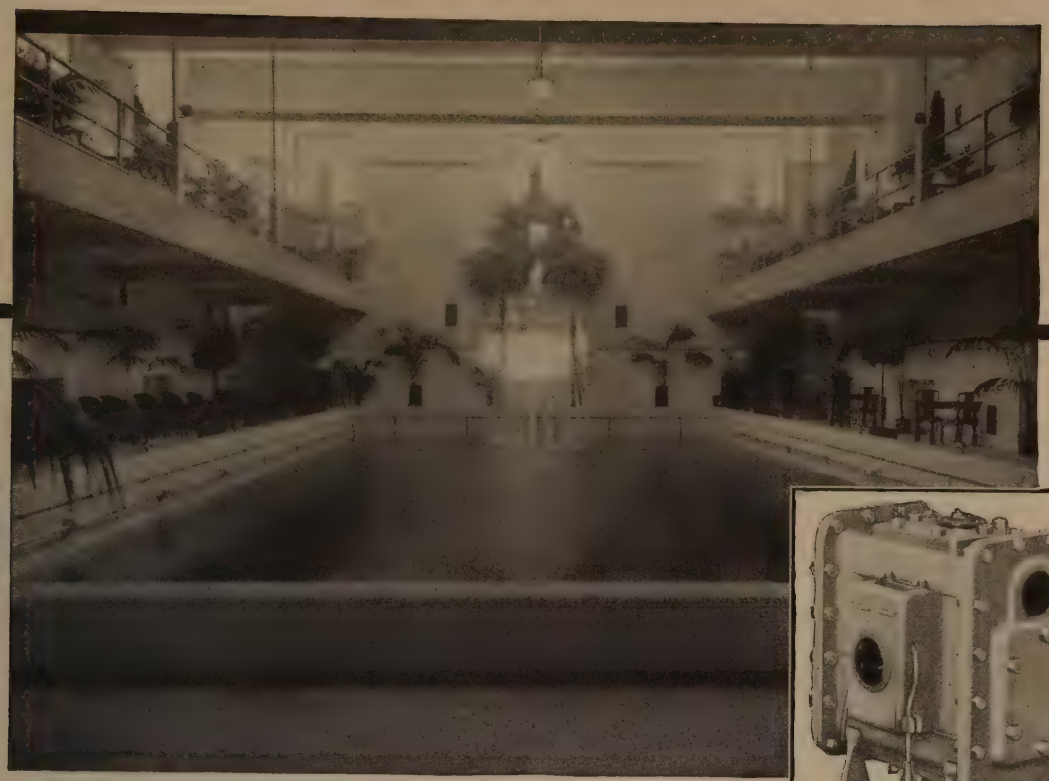
Perennial Window Shades Disappearing Partitions
Skylight Shades Cloth-Lined Metal Weatherstrips

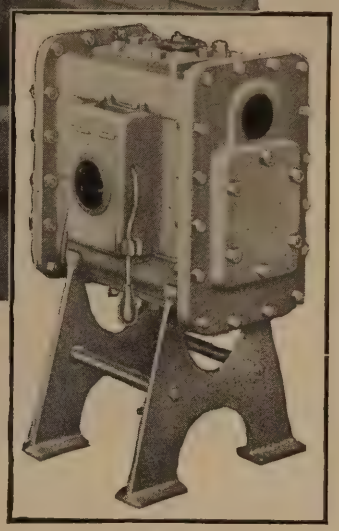
Write for complete information and prices

Athey Company

6085 West 65th Street · Chicago, Ill.

In Canada—CRESSWELL-McINTOSH, Reg'd.
270 Seigneurs St., Montreal, Que.





The health of each user of the pool of the Minneapolis Athletic Club is protected by R-U-V, ultra violet ray, sterilized water.

Refreshing Swimming Pool Water That Stays Safe

Sterilizing Water With Light

The R-U-V ultra violet ray method of water sterilization is extremely simple—yet highly effective. The water is exposed to the purifying ultra violet rays of a mercury vapor quartz lamp. These rays are deadly to disease-producing bacteria. By circulating the water about the lamp in a thin film the exposure and, consequently, the thorough sterilization of each drop is assured. Sterilization takes place instantaneously. There is no chance that only a portion of the water will be sterilized.

R-U-V Sterilizers are available for swimming pools, individual drinking water systems, municipal water supplies, and bottling plants. Though the installation cost is higher than that of most chemical-treating outfits, the resulting low pool operating costs and the absence of high depreciation charges make the cost per gallon of pure water used exceptionally low.

An interesting booklet has been published by our engineering departments. It gives detailed information regarding the R-U-V process and the results that have been obtained in various installations. Simply write for Booklet A-8.

WATER sterilized by the R-U-V, ultra violet ray, method retains germicidal properties for some period after it has actually passed through the purifying ultra violet rays of the sterilizer. Disease producing bacteria do not thrive and increase, but tend to die out rapidly, when introduced into it.

What this means in swimming pools is self evident. Harmful bacteria that are introduced by bathers' bodies, weaken or die before they can endanger the other users of the pool.

This residual germicidal action adds an additional health protection to the remarkably complete purification effected when the water passes through the germ killing ultra violet rays of the R-U-V Sterilizer.

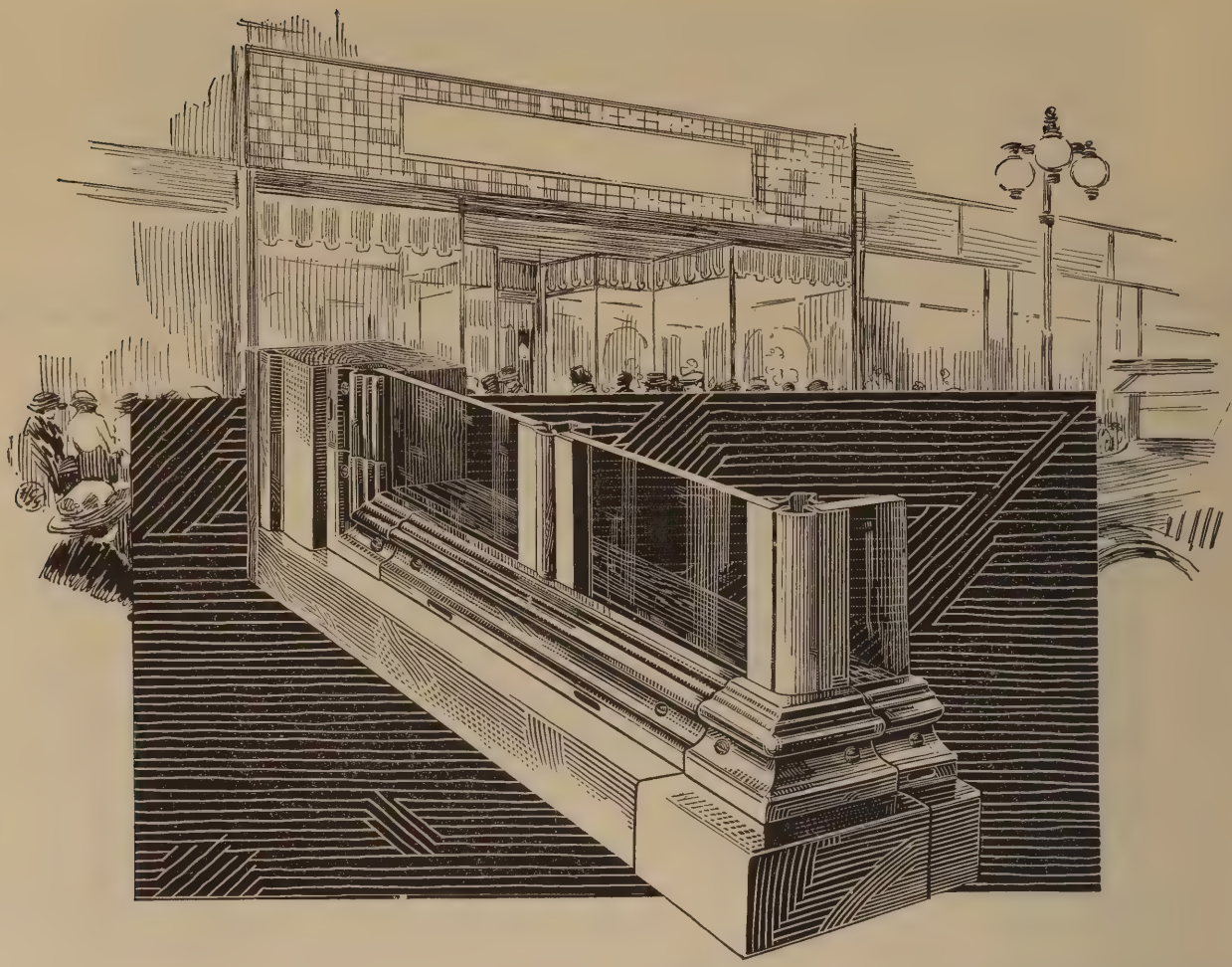
And it must be remembered that the ultra violet ray method is Nature's method. It adds no chemicals or other substances to the water. As a result the water retains all of its original refreshing qualities for the enjoyment of the bathers.

The story of the actual tests for ultra violet ray residual action is contained in booklet written by disinterested health officials. Ask for it when sending for our Booklet A8 on the ultra violet ray process and its application to swimming pools, drinking water systems and similar uses.

The R. U. V. Co., Inc.
383 Madison Ave.
New York, N. Y.

R-U-V
Ultra Violet Ray Water Sterilization

James B. Clow & Sons
534-546 S. Franklin Street
Chicago, Ill.



One of the outstanding advantages of Desco Store Front construction is its simplicity of installation. It is so simple to assemble that the work can be done in the shortest possible time by inexperienced workmen without annoying and costly delays.

Installation is simply a matter of assembling units so obvious in their use that the work can be handled speedily and accurately by any mechanic.

This is the reason why architects can and do specify Desco construction with the assurance that the work will be executed promptly and accurately without the need of technical supervision.

A request from you will bring complete working details and a price list. For further information we refer you to Sweet's Catalog.

A complete stock of "Desco" construction materials carried in our New York City warehouse, 562 West 52nd Street. There is a distributor near you.

DETROIT SHOW CASE COMPANY
1667 FORT STREET WEST, DETROIT, MICHIGAN

(193)

Desco METAL

STORE FRONTS

HORN-WATER-PROOFINGS

All Caulking and Pointing
on the
London Guarantee Trust Building
done with
VULCATEX

LONDON GUARANTEE TRUST BUILDING, CHICAGO, ILL.
ALFRED S. ASCHULER, *Architect*

Dehydratines

No. 1

Replaces furring, or used in conjunction with it—to damp-proof the interior surface of exposed brick or terra cotta walls—before plastering.

No. 2

A transparent damp-proof coating for the exterior of stone, brick—concrete walls. Preserves the surface and prevents discolorations and efflorescence.

No. 10

Damp-proofs exposed walls, with a heavy troweled coating on the inside face. Replaces furring. The most positive method of damp-proofing.

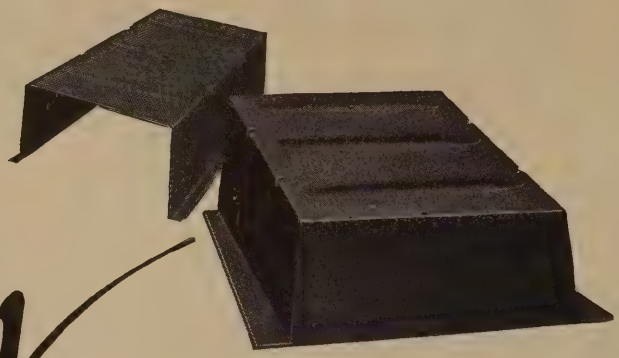
No. 80

A liquid compound to lubricate, hasten the hardening and permanently strengthen cement, mortar and concrete mixtures.

Hydratite

Water-proofs concrete and cement mortar integrally and permanently. Used in mortar joints—stucco—foundations and floors.

A. C. Horn Company. LONG ISLAND CITY, N. Y.
58 Horn Building



Why MEYER STEELFORMS *Actually* SAVE Concrete ~ Steel ~ Form Work ~ Time and Labor

MEYER STEELFORM construction is a standard system of concrete floor construction in present day use by architects, engineers and contractors in important structures throughout the entire United States.

MEYER REMOVABLE STEELFORMS are made in standard units. The most economical size of concrete joists for all conditions of loading and span may always be obtained. Full benefit of the tee section of every joist is secured, eliminating all non-carrying concrete and effecting savings in dead load throughout beams, columns and footings.

The sturdy strength of *16 gauge* metal combined with the ingeniously designed stiffening ribs in Meyer Steelforms insures the sizes of concrete members exactly as called for by the plans.

Only a bare skeleton of form work is required for Meyer Steelforms. Meyer Steelform double and single tapered endforms have wide flat flanges for nailing to centering which obviates the necessity of stripping the 2x6 joist bottom where the joist widens out at the support.

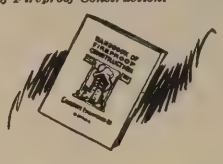
Tees on the beams are formed by the steelforms and not with wood. Flat nailing flanges eliminate the exact spacing of 2x6 joist soffits.

The simplicity of the centering, 2x6 joist soffits, ledgers about 4' on centers and upright supports with bracing—there are no frills of any kind—reduces labor costs to the minimum and promotes speed of erection.

Meyer Steelforms are sold on a rental basis, including the installation and removal, and the economies effected by constant re-use and wide distribution are reflected in our prices.

MEYER STEELFORMS
for lower formwork costs

For more detailed information relative to Meyer Steelforms, send for our Handbook of Fireproof Construction.



Our large stock of MEYER STEELFORM equipment at all warehouses assures quicker delivery to the job.

CONCRETE ENGINEERING CO. *Omaha*
Chicago-Detroit-Omaha-Milwaukee-Kansas City-Des Moines-Dallas-Minneapolis-St. Louis-Houston

Ceco PRODUCTS *for Permanent Building*
CONCRETE REINFORCING MATERIALS AND FORM WORK
FIREPROOF LATHING MATERIALS

Our Engineering Service

Our sales organization and engineering department is technically trained and each member is ready to assist the architect, contractor or engineer with layouts and estimates for the reinforced concrete portion of building work.

L·O·KOVEN & BROTHER·Inc.
Engineers Machinists ✧ Galvanizers and Sheet Metal Workers ✧ Welders Boiler Makers

Galvanizing Protects Iron

Iron Gates

RECALL, for instance, some country estate where you visit from time to time—the sort of place that has a pair of large iron gates at the entrance of the premises.

Red Lead

Many times in passing these gates you've seen the painters at work touching up the bad places with red—that is, as many as are discernible to the eye.

Sure Protection

The life of these gates would have been lengthened several times over if they had been galvanized (zinc coated) by the ***hot dip*** process.

L·O·KOVEN & BRO·Inc. 154·Ogden Ave. JERSEY·CITY·N·J

Day and Night Fuel Economy Push Button Control of Temperature

SINCE 1885 this company has been equipping all classes of buildings with fuel saving automatic temperature regulation. Practically every worthwhile improvement in automatic temperature regulation has been this company's invention and development. The Johnson System of Temperature and Humidity Control has long been regarded as the utmost in possible perfection, and thoroughly efficient. Now The Johnson System has been brought to the very final step of complete temperature regulation: the addition of The DUAL THERMOSTAT: day and night temperature adjustment by a single push button control.

The DUAL THERMOSTAT

IN THE JOHNSON SYSTEM OF TEMPERATURE AND HUMIDITY CONTROL

At the end of day, the building manager presses a push button on the wall of his office. The heat in all of the rooms vacated for the night is shut off, or lowered to the very minimum: and the heat only for those rooms to be used at night is left on.

Next morning, pressing the same push button restores ALL of the rooms in the building to normal heat for the day. The great night time fuel saving possibilities, the certainty and valuable convenience furnished, are readily appreciated.

The fact that this company recommends the DUAL THERMOSTAT is sufficient assurance that it is totally practical and reliable. However, it is having ample success in the many installations already made to furnish further endorsement of its value. A Johnson Service Company engineer will gladly call with details, as applied to your particular type of building, and with a workng model to demonstrate.

JOHNSON SERVICE COMPANY

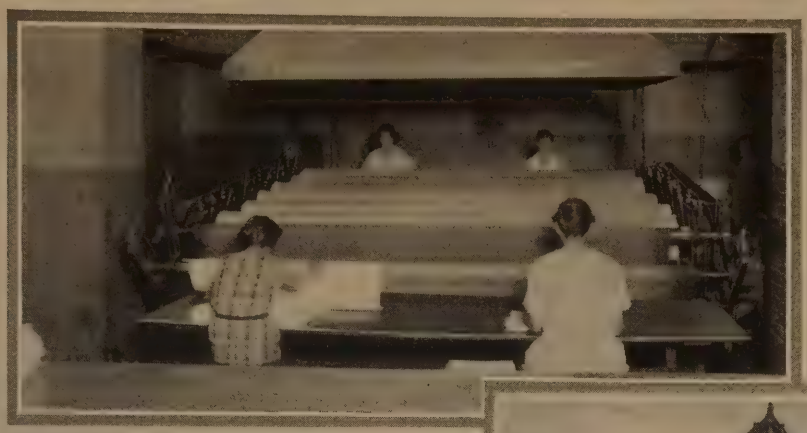
Main Office and Factory: **MILWAUKEE, WISCONSIN**

AUTOMATIC TEMPERATURE and HUMIDITY CONTROL SINCE 1885
TWENTY-NINE BRANCHES—UNITED STATES and CANADA

Branches

ALBANY	CINCINNATI	INDIANAPOLIS	PORTLAND	CALGARY, ALTA.
ATLANTA	DALLAS	KANSAS CITY	PHILADELPHIA	MONTREAL, QUE.
BOSTON	DES MOINES	LOS ANGELES	SEATTLE	TORONTO, ONT.
BUFFALO	DETROIT	MINNEAPOLIS	SAN FRANCISCO	VANCOUVER, B. C.
CHICAGO	DENVER	NEW YORK	SALT LAKE CITY	WINNIPEG, MAN.
CLEVELAND	GREENSBORO, N. C.	PITTSBURGH	ST. LOUIS	

No. 11 of a series of advertisements featuring prominent laundry installations



The American Six-Roll Flat Work Ironer that irons the flat work of The Hotel Sinton quickly and neatly.

The Hotel Sinton, Cincinnati
Architects:
Frank Andrews
George B. Post

Add The Hotel Sinton *to the list....*

ADD The Hotel Sinton, Cincinnati, to the long list of nationally-known hotels that contain "American" laundries. For The Sinton's laundry, a model of its kind, is equipped with "American" machinery down to the smallest detail.

The Hotel Sinton finds its laundry advantageous in more ways than one. There is a decided benefit in having the large volume of hotel laundry work directly under the supervision of hotel officials. Then, because of the speed with which linens are cleansed and returned to service, The Sinton is enabled to keep a smaller stock on hand and at the same time maintain the high standard of service for which the hotel is famous.

Like all modern hotels, The Sinton knows that a laundry is an integral part of hotel service. In looking for the best, it was only natural that The Sinton turned to engineers of The American Laundry Machinery Company for advice, and as a result the laundry was designed and installed by specialists of this company.

A card will bring full details of this installation—or any other installation featured in this series of advertisements.

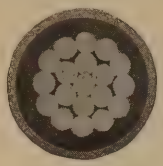
The American Laundry Machinery Co., Norwood Station Cincinnati, Ohio

THE CANADIAN LAUNDRY MACHINERY CO., Ltd.
47-93 Sterling Road, Toronto, Ont., Canada

At your service—a corps of laundry specialists

The American Laundry Machinery Company maintains a corps of engineers who have gained wide experience in planning and equipping most of this country's foremost hotel, commercial and institutional laundries. If you have any questions pertaining to modern laundry practice, you will find consultation with these specialists advantageous. This service is gladly offered you without any obligation whatever.

Agents: BRITISH-AMERICAN LAUNDRY MACHINERY CO., Ltd.
Underhill Street, Camden Town, London, N. W. 1, England



SIMPLEX
WIRES AND CABLES

SIMCORE - National Electrical Code Standard. Every length is subjected to searching electrical tests to insure a first quality product. Ask for specifications.
CAOUTCHOUC - "B. C." A rubber covered braided wire insulated with a 30% Para compound. Send for specifications.
LEAD COVERED CABLES AND WIRES - For under-ground distribution where a conduit system is used.
STEEL TAPED CABLE - Used where a conduit system is not available. It carries its own conduit. Descriptive booklet upon request.
CONDEX PARK CABLE - Adequately insulated and protected by an overlapping, interlocking flexible steel conduit. For series lighting circuits.
OVERHEAD SERVICE CABLE - Designed for use between pole and house where service is not carried underground.
FIBREX OVERHEAD SERVICE CABLE - For aerial service connection from pole to house when service must pass through trees.
FIBREX TREE WIRE - For installation among trees or where chafing may occur. It is non-inductive. Send for circular.
FIBREX FIRE ALARM CABLE - Consists of a multiple conductor cable protected with the abrasion resisting fiber tape which protects FIBREX Tree Wire and FIBREX Overhead Service Cable.
SUBMARINE CABLES - For power transmission or for telephone or telegraph service. Our engineering department is always available for consultation.
SIGNAL CABLE - Dependable insulated cable for railway signals and police or fire alarm service.
IGNITION WIRES - Used extensively, and with satisfaction throughout the automotive field.
TIREX PORTABLE CORD - For electrical tools and appliances. Rubber-armored. Flexible. It cannot kink,—and has the wearing qualities of an automobile tire.
TIREX SJ CORD - A rubber armored cord for drop lights or table lamps; made in colors. Send for folder.
TIREX MINING MACHINE CABLES - Heavily insulated, rubber-armored, portable cables with the wearing qualities of a cord tire.
POLE FIXTURE CABLE - For wiring from the base of ornamental lighting standards to the lamp fixture at the top or from line to lamp on goose neck fixtures.
ARC CABLE - For connecting swinging arc lamps with transmission lines.
AUTOMOBILE - Wires and cables for lighting and ignition systems.
RUBBER INSULATED CABLES - For any commercial voltage. Special descriptive bulletin on request.
CAMBRIC INSULATED CABLES - For power transmission service, submarine, underground or aerial. Special bulletin on request.
PAPER INSULATED CABLES - For high voltage power transmission. Descriptive bulletin upon request.
SPECIAL INSULATED WIRES AND CABLES - To meet any conditions of service. On specification drawn by our engineers or to conform to customers' specifications.

Technically trained experts who know how to impart the qualities which insure satisfactory service supervise the manufacture of all Simplex Wires and Cables.

SIMPLEX WIRE & CABLE Co
MANUFACTURERS
201 DEVONSHIRE ST., BOSTON
CHICAGO SAN FRANCISCO NEW YORK

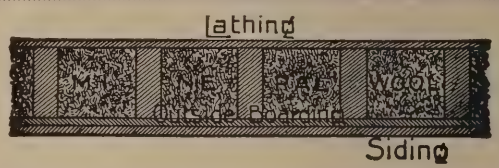
SASH CHAINS

"Giant Metal"
"Red Metal"
and Steel

Reliable Sash Chains have been manufactured by us for forty-five years. Our chains are installed in most of the better built buildings of the country.

See Page 1335, Sweet's Catalog.
Write for Sash Chain Catalog.

The Smith & Egge Mfg. Co.
Bridgeport, Conn.
Originators of Sash Chains



Section of Outside Wall of House, Showing Wool Between Studding

Mineral Wool for Building

Mineral Wool has superseded all other materials used for similar building purposes because it does "a great work at little expense." A house lined with Mineral Wool has an indestructible, fire-proof and vermin-proof guard; it protects the entire household. In the winter time it keeps the cold air out, facilitating proper heating and economy in fuel. In the summer it keeps the heat out.

This material, being of fibrous, inelastic composition, acts as a deadener and muffles all sound. It is considered the best insulator material on the market, making it a perfect refrigerating machine.

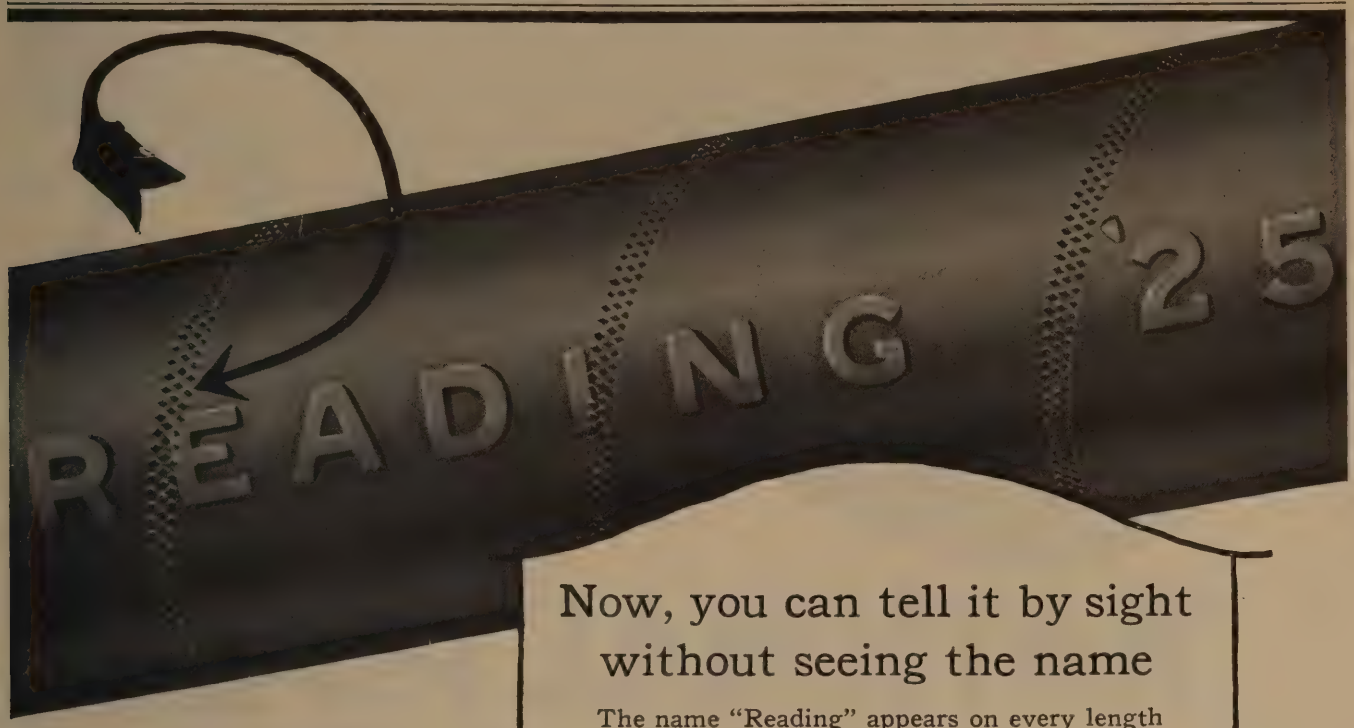
Mineral Wool makes life-long friends of all its users. If you are skeptical as to its power, let us demonstrate. We can prove all claims. Write us today.

U. S. MINERAL WOOL CO.
280 Madison Avenue, New York

Section of Sound-Proof and Fire-Proof Partition

READING PIPE

GENUINE WROUGHT IRON



Now, you can tell it by sight without seeing the name

The name "Reading" appears on every length of Reading Genuine Wrought Iron Pipe—and thousands looks for it. But sometimes the pipe is so placed that the name isn't easy to find—or cut so short that it can't be found.

Now you can be *sure* at all times, under all conditions, that the pipe which you *paid for* as "Reading" *is* "Reading"—*without even seeing the name.*

The new Spiral Knurled Mark assures positive, easy identification—a big advantage to you, and a big time saver for the man who checks up on the specifications.

An installation of Reading Genuine Wrought Iron Pipe indeed costs but a fraction more than the cheaper steel pipe, but its added years of service make it a sound, economical investment. Specify "Reading" and look for the Spiral Knurled Mark.

In the darkest corner a man with a flashlight can instantly identify "Reading."

Even on the shortest length "Reading" identification is instant and positive.

READING IRON COMPANY

Reading, Pa.

World's Largest Manufacturers of Genuine Wrought Iron Pipe

Boston	Pittsburgh	Baltimore
Philadelphia	Chicago	Cincinnati
Seattle	New York	Los Angeles
Dallas	San Francisco	St. Louis

"NATIONAL" PIPE *is made Scale Free*

THE SCALE FREE Process was invented and developed by National Tube Company and is exclusive—therefore, no other pipe is made SCALE FREE.

This process is applied to "NATIONAL" Butt-weld Pipe, sizes ½ to 3-inch, and is entirely mechanical. After the pipe leaves the welding furnace and passes through the sizing rolls, it is slightly cooled and then given a pass through a series of specially designed rolls which slightly reduce the diameter and increase the length of the pipe, and in doing so, the scale, which has become brittle while cooling, is worked loose and falls from the pipe walls. It is later blown out by compressed air or washed out with water.

The clean, smooth surfaces of SCALE FREE pipe mean—better galvanized coatings—minimized corrosion, particularly pitting—less chance of damaged valve seats and clogging of small orifices—decreased friction loss—and greater delivery capacity. For details of this process and its advantages, write for a copy of "NATIONAL" Bulletin No. 7.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

GENERAL SALES OFFICES: FRICK BUILDING

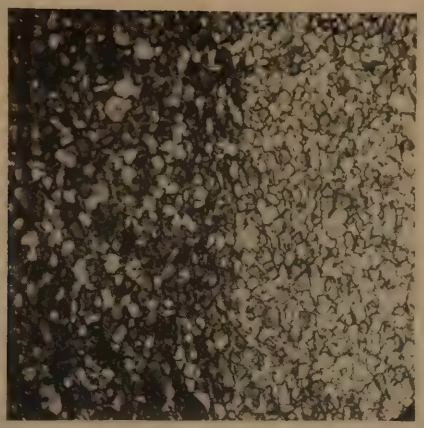
DISTRICT SALES OFFICES

Atlanta Boston Chicago Denver Detroit New Orleans New York Salt Lake City Philadelphia Pittsburgh St. Louis St. Paul

Pacific Coast Representatives: U. S. Steel Products Co. San Francisco Los Angeles Portland Seattle

Export Representatives: U. S. Steel Products Co. New York City

Corroded from this side



Original Muntz Metal

Micro-photograph of Muntz pipe showing effect of corrosion

Corrosion line

ALPHA Brass Pipe resists corrosion better

ORDINARY brass pipe is made of so-called Muntz metal.

It contains two kinds of crystals—Alpha and Beta and when attacked by corrosive waters it is the Beta constituent that is corroded first. Note the blackened Beta in the micro-photograph.

When pipe contains above 63 per cent copper the undesirable Beta crystals cease to form. Alpha Brass pipe has approximately 66 per cent copper and consequently no Beta crystals. In addition to offering a superior resistance to corrosion Alpha pipe is more ductile. It may be bent on the job without rosin or sand. Because it has more lead, it is easy to cut and thread. Because of its homogeneous structure, it has a fine surface that is not spoiled by bending and it takes a splendid nickel plate.

Trade CHASE Mark

Alpha Brass Pipe

contains only Alpha crystals. It is a fine-grain, dense, ductile and tough metal. It makes perfect bends, threads and cuts easily and offers even greater resistance to corrosion than ordinary brass pipe. Full details in our Alpha Brass Book.

WE have prepared a book describing the characteristics of Alpha Brass Pipe. You may have a copy for the asking.

CHASE COMPANIES
INCORPORATED
WATERBURY, CONNECTICUT
Chase Metal Works—Chase Rolling Mills
STOCKS
Chase Companies of New Jersey, Newark.
The Ohio Chase Company, Cleveland.
Chase Companies of California, San Francisco, Los Angeles
OFFICES
Boston New York Philadelphia Rochester
Pittsburgh Chicago St. Louis Denver Atlanta
Members Copper and Brass Research Association

CHASE COMPANIES, INCORPORATED, *Waterbury, Conn.*
Please send me free of charge a copy of your book on Alpha Brass.

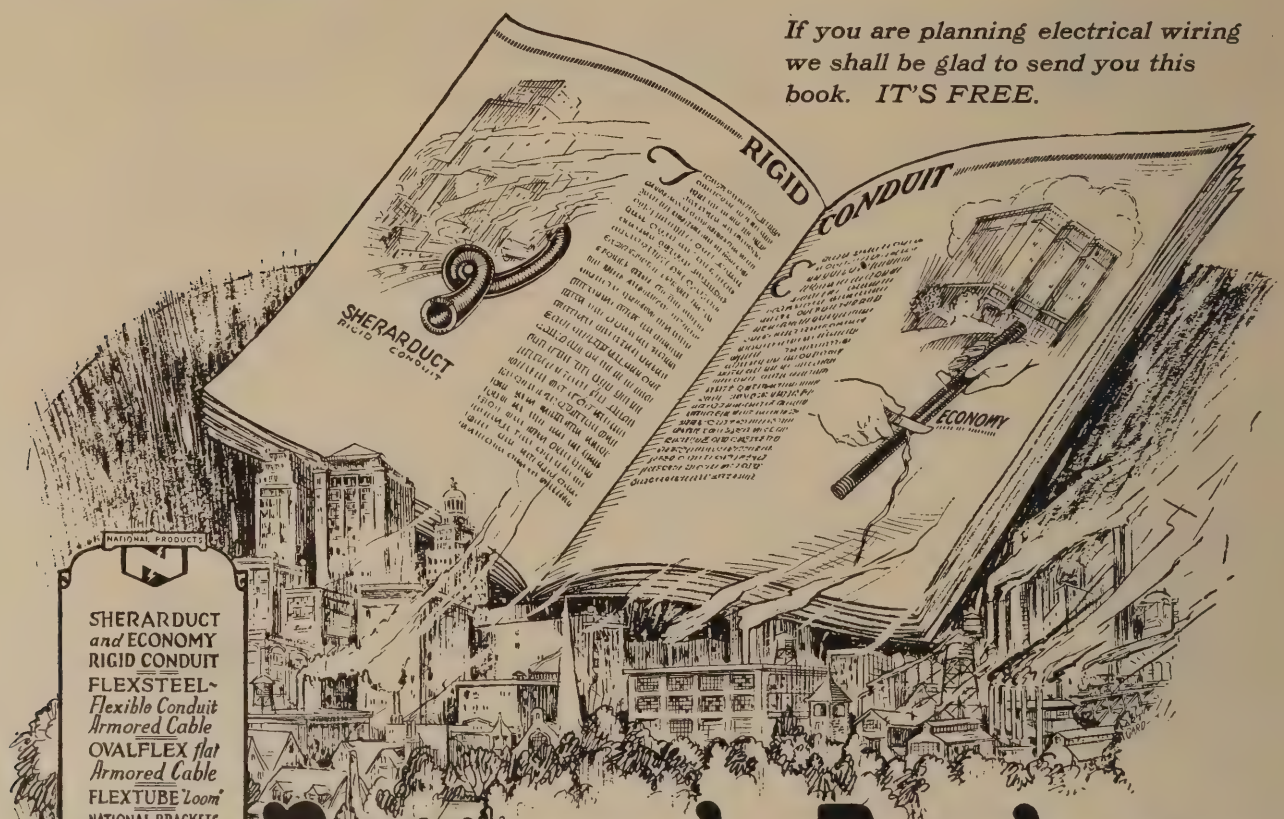
Name_____
Position_____
Firm_____
Address_____

For Better Lighting

BETTER lighting brings comfort, beauty and color to the home, efficiency to the office, attractiveness to the shop window and convenience and usefulness everywhere. Back of better lighting is better wiring because one can not exist without the other.

The wiring system is a vital part of any building, a subject the owner should know something about. Making electrical wiring safe, permanent and trouble-free is the foundation on which the National Metal Molding Company has built a great institution and a world-wide business. The subject of better wiring is not intricate or technical. Details can be told in a simple and interesting way and are told in a book "Better Wiring for Better Lighting."

If you are planning electrical wiring we shall be glad to send you this book. IT'S FREE.



SHERARDUCT *and* ECONOMY RIGID CONDUIT
FLEXSTEEL~ *Flexible Conduit Armored Cable*
OVALFLEX *flat Armored Cable*
FLEXTUBE *Loom*
NATIONAL BRACKETS
METAL MOLDING *The Orginal Surface Raceway*
LIBERTY WIRES *Cable and Cords*
OUTLET *and Switch Boxes*~
CONDUIT FITTINGS

National WIRING Products

National Metal Molding Company

1417 Fulton Building, Pittsburgh, Pa. Represented in All Principal Cities (x37)

EITEL CENTRAL BLOCK
UNDER CONSTRUCTION AT RANDOLPH, LA SALLE AND WELLS STS., CHICAGO
To be the new home of the

BISMARCK HOTEL

And containing also the Bismarck Restaurant, Metropolitan Office Building and New Palace Theatre

EITEL BROS., Owners
C. W. & GEO. L. RAPP, Architects
WEIL McLAIN CO., Plumbing Jobbers
E. BAGGOT CO., Plumbing Contractors

EQUIPPED THROUGHOUT WITH THE

Watrous

Flush-Valve and Duojet Closet

Watrous Flush-Valve and Duojet Bowl—Floor Type—selected for Eitel Central Block, Chicago

THE Watrous Flush-Valve delivers the exact amount of water required for a proper flush and refill, and the Duojet Closet Bowl *empties itself more quickly and is more sanitary* than any other closet bowl.

The Watrous Closet *cannot possibly clog or overflow*—due to the elimination of the restricted passages which are necessary in other types of closets. This prevents the expense and annoyance occasioned by the removal of obstruction from the bowl, and repairs to walls and ceilings on lower floors.

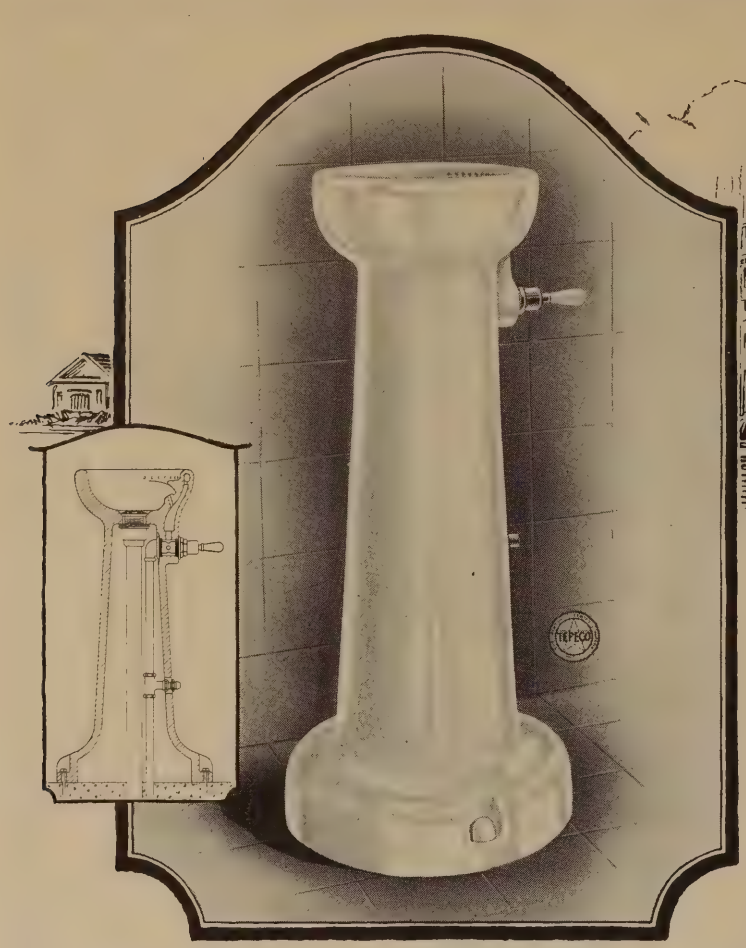
The efficiency of this combination makes an annual money saving which *no building owner can afford to ignore.*

For full details on the Watrous Flush-Valve and Duojet Bowl, write for booklet CC

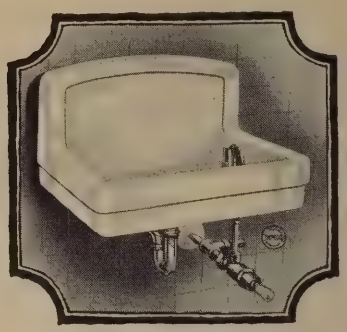
PLUMBING DIVISION

Watrous Flush-Valves—Duojet Closets—Self-Closing Basin Cocks—Combination Lavatory Fixtures—Pop-Up Wastes—Drinking Fountains—Liquid Soap Fixtures—etc.

THE IMPERIAL BRASS MANUFACTURING COMPANY
1238 West Harrison Street *(Established 1885)* CHICAGO



"Premier" Fountain. Mounted on concealed adjustable clip hanger. Two-fire vitreous china. Integral side stream nozzle.



"Tuxedo" Fountain. Mounted on concealed bar hanger. Two-fire vitreous china. Integral side stream nozzle.

"Cadwalder" Fountain. Fitted with china bubbler, self-closing, oscillating handle valve. Two-fire vitreous china.

There's no "Danger Line" on TEPECO Fountains

THE raised Integral Side Stream Nozzle, guarded by Self-flushing Integral Sanitary Ledge as developed on the fountain illustrated above, is the most sanitary drinking device obtainable.

The flushing rim washes the ledge continually while the fountain is in use, preventing the danger of contact with a dry surface. Construction of the supply chamber keeps stream at a uniform height. Note in the cross section how waste and supply pipes are concealed in pedestal.

A wide range of designs and prices enables you to select the *right* fountain for every purpose.

The
TRENTON POTTERIES COMPANY
TRENTON, N. J., U. S. A.
BOSTON SAN FRANCISCO NEW YORK

TEPECO

ALL-CLAY PLUMBING FIXTURES

An opportunity for the architect to render his clients a special service

AS MORE and more Americans travel in Continental Europe, where the bidet is an accepted and standard fixture, the hygienic value, the convenience, and the personal daintiness offered by this accessory are becoming better known in this country.

It is plainly only a question of time when the bidet will be regarded as essential to every bathroom in high-class residences and hotels.

The architect who anticipates the general acceptance of this fixture will gain the appreciation of his clients, and also save them money by making the bidet a part of the original plumbing installations.

Maddock Bidets represent over twenty years' development of this fixture. They are made of solid white vitreous china and are sanitary, efficient and convenient. Details of the Madval design are given below.

Write us for as many copies as you can use of our new booklet, "Maddock Bathrooms," and our special booklet on bidets. They will help you to "sell" clients on quality fixtures, and make them more appreciative of such fixtures, when recommended. There will be no charge for the booklets.

Maddock Bidet

Madval K-2831

All White Vitreous China, including
handles and escutcheons
Flushing Rim
Center Douche
Pop-up Waste
Hot and Cold Water Valves
and Transfer Valve for supplying either
flushing-rim or douche

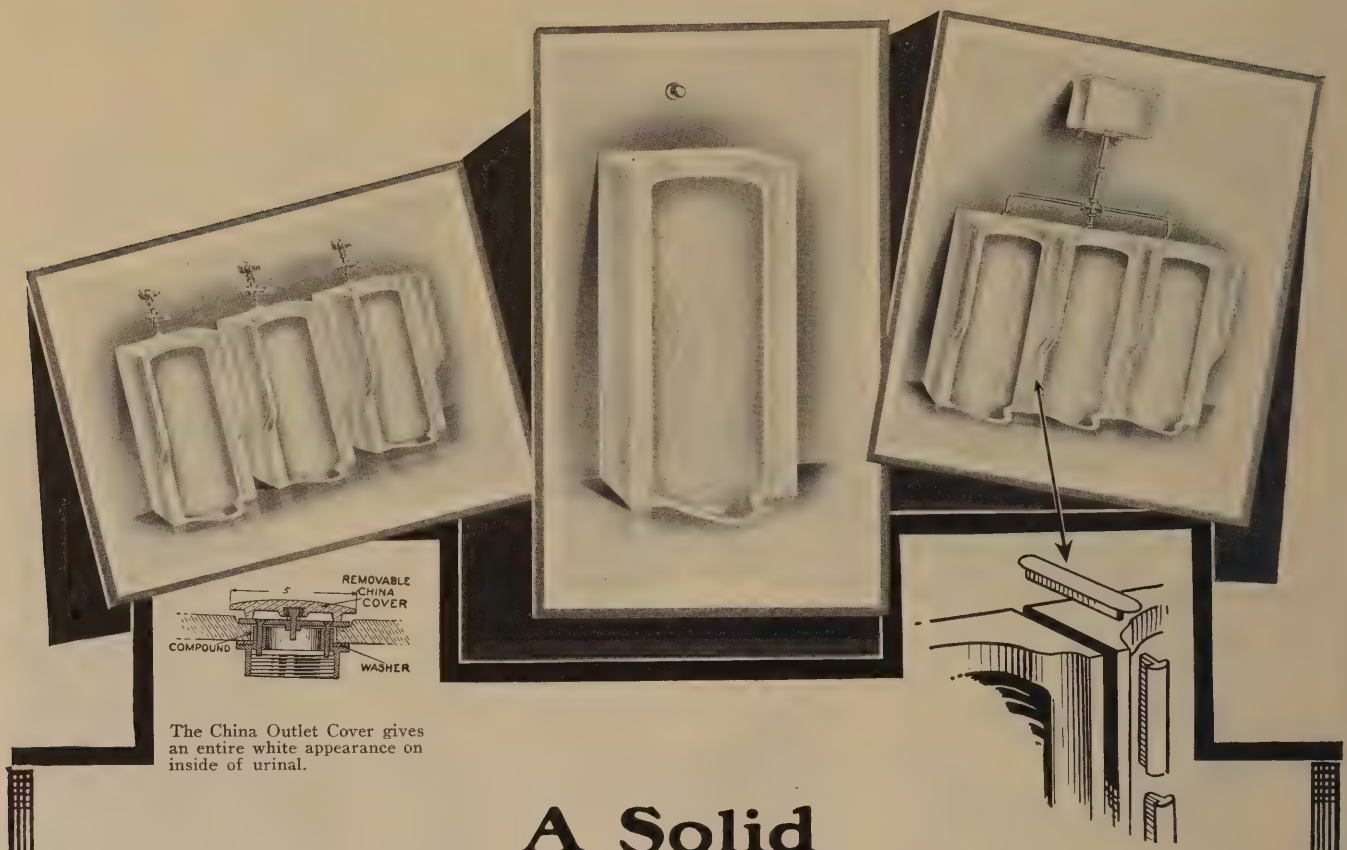
THOMAS. MADDOCK'S SONS COMPANY, *Trenton, N.J.*

THOS. MADDOCK'S SONS CO. TRENTON, N.J.

MADDOCK

Bathroom Equipment

A fixture you will eventually specify



The China Outlet Cover gives an entire white appearance on inside of urinal.

A Solid Vitreous China Stall Urinal

Guaranteed not to Craze

While vitreous china has long been regarded as the ideal material for sanitary plumbing fixtures, its use in the construction of stall urinals is of comparatively recent date. In fact, until made by Douglas, the production in vitreous china of so large a fixture as a stall urinal was thought to be practically impossible.

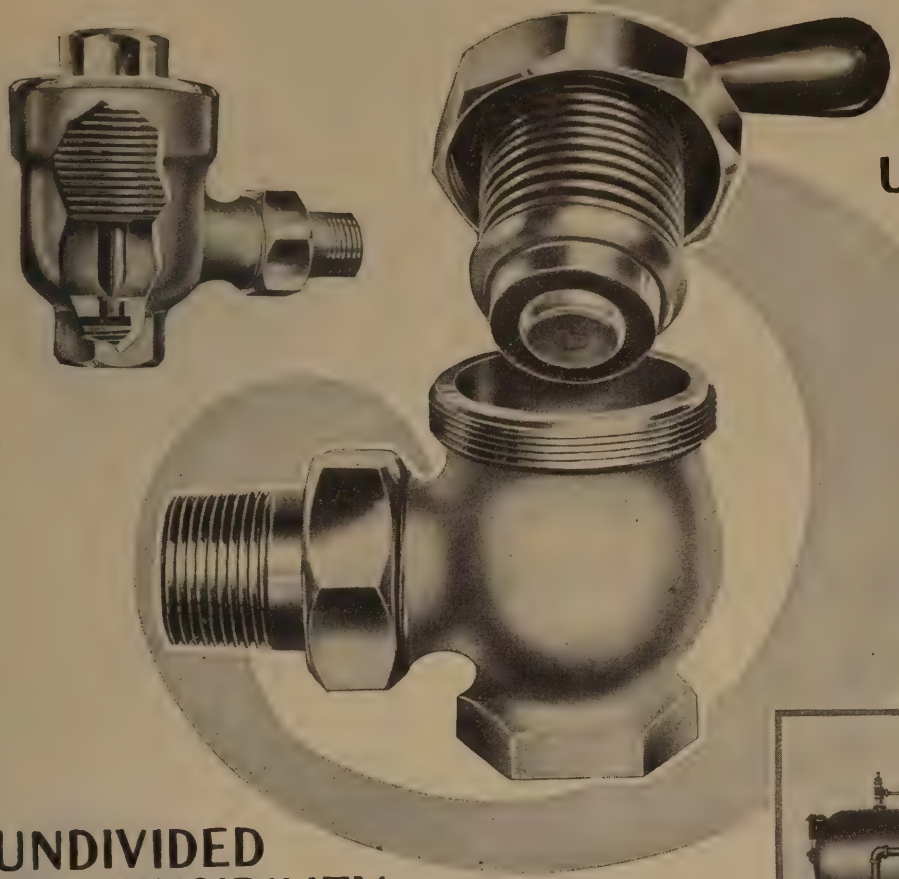
Douglas Stall Urinals are the ONLY FULL-SIZED SOLID VITREOUS CHINA STALL URINALS made—the result of intensive study and experimenting. They are of the same high quality materials and workmanship that have distinguished all Douglas products.

The superiority of vitreous china over other materials being well known, the advantages of Douglas Urinals will be apparent to everyone specifying and installing sanitary plumbing fixtures. However, when writing the specifications for your next job where urinals are included, bear in mind that Douglas Vitreous China Stall Urinals will not crack, craze, or discolor—that they are absolutely impervious—that they are easy to clean and keep clean—assuring the utmost in service and satisfaction.

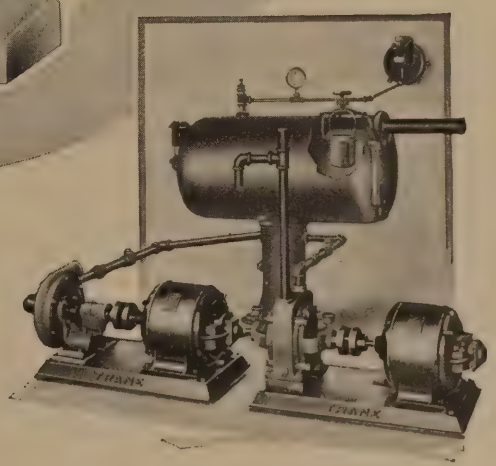
THE JOHN DOUGLAS COMPANY
Makers of High-Grade Plumbing Fixtures
CINCINNATI, OHIO

TRANE'S BIG THREE

BELLOWS PACKLESS VALVE • BELLOWS TRAP • VACUUM PUMP



USE THEM TOGETHER



UNDIVIDED RESPONSIBILITY

Trane Bellows Trap 14 corrugations. Bellows 1¾ inch in diameter. Brass body. Normal range 15-inch vacuum to 25 pounds pressure. Guaranteed 5 years. Described in Bulletin 14.

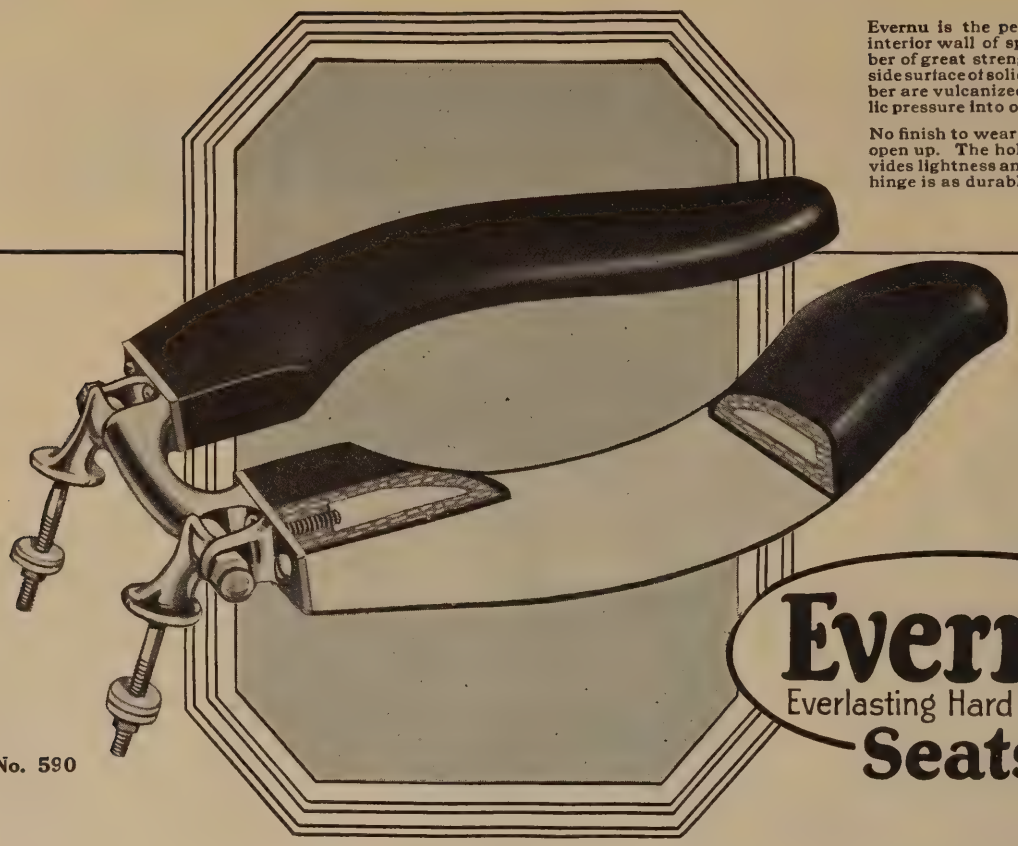
Trane Bellows Packless Valve Absolutely packless in every respect. Contains genuine Trane Bellows. Brass body. Indestructible handle. Described in Bulletin 14.

Trane Vacuum Pump Separate Case Construction. Single or two-motor drive. 350 combinations. Pedestal type tank with built-in strainer. Less motor horsepower for a guaranteed capacity than any other vacuum pump ever designed. Described in Bulletin 20.

Write for the Trane Bulletin Binder, describing the entire line of Trane Heating Specialties and Trane Pumping Equipment.

HEATING TRANE PRODUCTS PUMPING

THE TRANE COMPANY, 220 Cameron Ave., La Crosse, Wis. Manufacturers of vapor and vacuum heating specialties and pumps. Branches and sales connections at New York, Chicago, Boston, Philadelphia, Buffalo, Cleveland, Detroit, Seattle, Los Angeles, Albany, Minneapolis, Salt Lake City, Ft. Wayne, Portland, Oregon, Greensboro, N. C., Zanesville, Ohio, Atlanta, Ga., Des Moines, Ia. In England: 22-23 Clerkenwell Close, London, E. C. 1. In Canada: The Trane Co., 23 River St., Toronto; Thomas Robertson & Co., 134 Craig St., West, Montreal; F. S. Murdock, 310 Breadalbane, Winnipeg. In Japan: The Uchida Trading Co., Ltd., Tokio—Osaka—Kobe. In China: C. J. Doughty & Co., 7 Jinkee Road, Shanghai.



No. 590

Evernu is the perfect seat. The interior wall of special hard rubber of great strength and the outside surface of solid color hard rubber are vulcanized under hydraulic pressure into one lasting piece.

No finish to wear off. No joints to open up. The hollow center provides lightness and strength. The hinge is as durable as the seat.

Evernu
Everlasting Hard Rubber
Seats

The initial cost of this perfect seat is modest

YOU may have thought that because of the fine quality of the materials used and because of the many exclusive advantages their construction gives them, Evernu seats were expensive. You will be glad to know that the cost is so reasonable. With excellent production facilities, including modern labor-saving machinery and the most efficient shop practices, we manufacture Evernu seats at a price you will be glad to pay.

That is particularly true if you remember to count the cost by the years of service these seats will give. Practically indestructible, impervious to acids and cleansers, equipped with a hinge that holds forever, Evernu seats are the most durable seats that have ever been made. And they never lose their fine appearance. Everlasting, they are always new.

There is an Evernu model for every type of bowl — closed front, open front, and open back and front for both regular and extended lip bowls. Architects may specify the hinge metal.

When a wood seat is needed, specify

NEVER-SPLIT

Each seat is carefully fashioned in four sections of quarter-sawed lumber, so that the cross grain runs around the hole. These sections are united in an inseparable unit by four bolts concealed in the wood. So tight is the grip of the bolt, so acturately machined are the tongue and grooves, that it is impossible for the joint to split or come apart. The hinge is designed for great strength and durability. Never Split Seats are beautifully finished, and there is a type for every bowl.

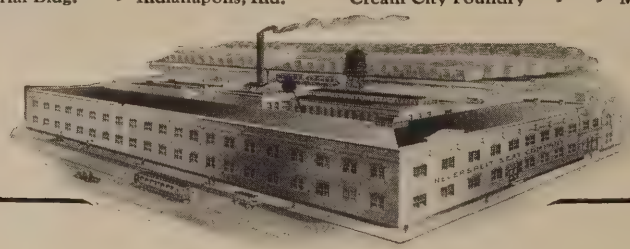
NEVER SPLIT SEAT COMPANY

Dept. 128, Evansville, Indiana, U. S. A.
Founded 1905

The Largest Manufacturers of Toilet Seats in the World

Among the recent Evernu installations are: —

Puget Sound College	Tacoma, Wash.	Santa Fe R. R. Bldg.	Dallas, Tex.
Bell Telephone Exchange	Camden, N. J.	Catholic High School	Philadelphia, Pa.
Indiana Memorial Bldg.	Indianapolis, Ind.	Cream City Foundry	Milwaukee, Wis.



A home in the Country Club District, developed by J. C. Nichols Investment Co., Kansas City, Mo. Van Brunt and Hertz, Kansas City, Architects; U. S. Water & Steam Supply Co., Kansas City, Plumbing Jobbers; Kansas City Plumbing & Heating Co., Plumbers

WHENEVER the roll is called of America's finest residential developments, the famous Country Club District of Kansas City is certain to be named among the first.

In a large proportion of the homes in this district, the J. C. Nichols Investment Co., its developers, have used Kohler Ware. In the typical house illustrated above are two "Viceroy" built-in baths, two pedestal lavatories, and a twin-drainboard sink of Kohler make.

The beauty of Kohler Ware and the quality and uniform whiteness of its enamel—always signed with the name "Kohler"— make it a fitting choice for the finest homes; just as its reasonable cost suggests its use for less expensive installations.

In Kohler Village

To the beauty of the homes of Kohler Village is due in no small measure the quality of Kohler products — enameled plumbing ware and private electric plants

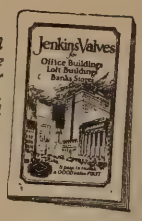
Kohler Co., *Founded 1873*, Kohler, Wis. · *Shipping Point*, Sheboygan, Wis.
BRANCHES IN PRINCIPAL CITIES

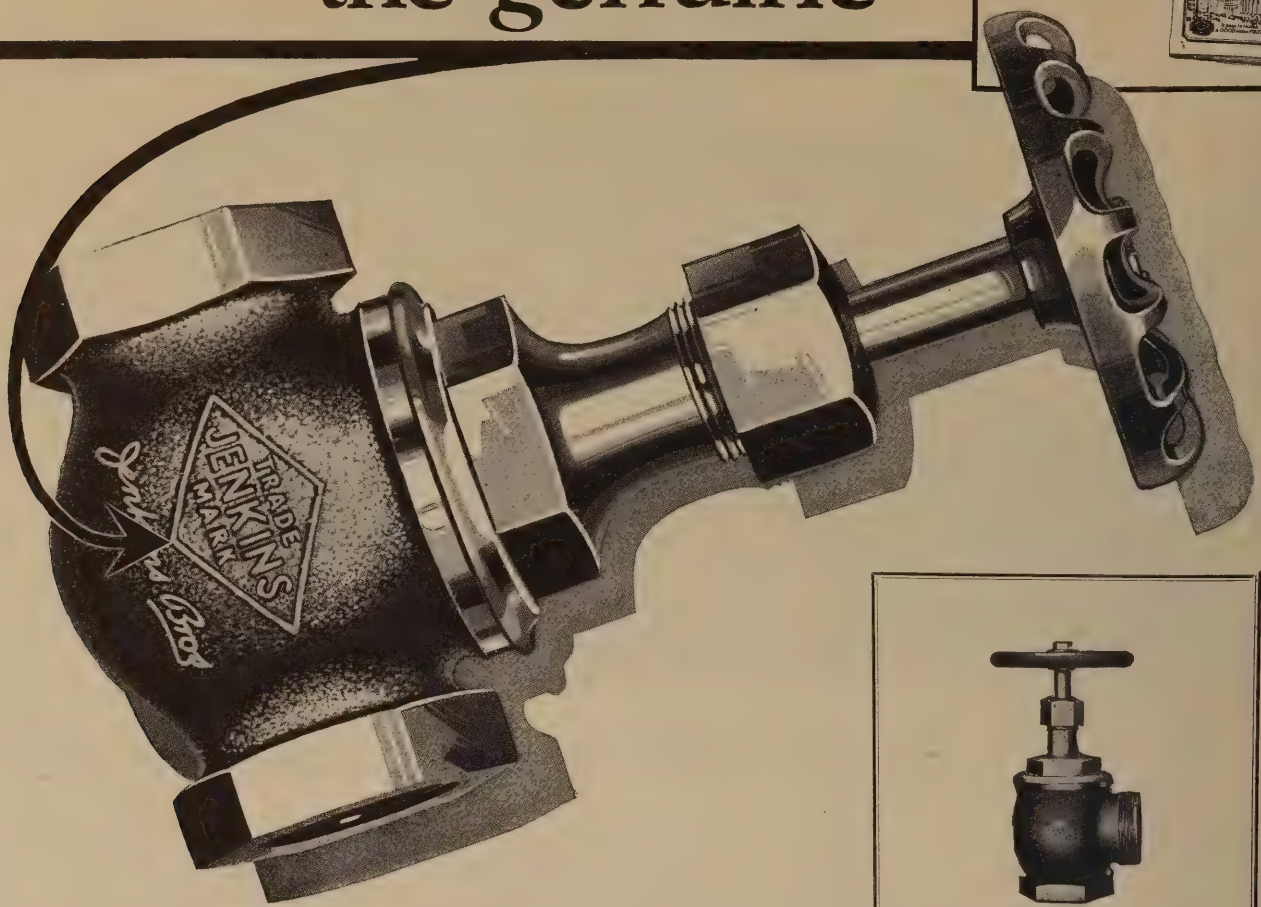
KOHLER OF KOHLER

Enameled Plumbing Ware

Make sure you get the genuine

Let this booklet aid you in choosing the right valves for every specification. Where shall we send your copy?





"All valves shall be genuine JENKINS, bearing the name 'JENKINS' within a diamond mark."

A specification like this leaves no room for doubt. It leaves no loophole to invite substitution. It assures your clients of genuine Jenkins valve service—long, reliable, free from frequent repairs and costly replacements.

Jenkins nation-wide distribution makes it easy for the contractor to fill an all-Jenkins specification. There are genuine Jenkins Valves for practically every plumbing, heating, power plant and fire protection requirement.

JENKINS BROS.

80 White Street.....New York, N. Y.
524 Atlantic Avenue.....Boston, Mass.
133 No. Seventh Street.Philadelphia, Pa.
646 Washington Blvd.....Chicago, Ill.

JENKINS BROS., Limited
Montreal, Canada London, England

FACTORIES
Bridgeport, Conn. Elizabeth, N. J.
Montreal, Canada

Fig. 715
Jenkins Bronze Fire Line Angle Valve

Fig. 352
Screwed Jenkins Standard Bronze Swing Check Valve

Fig. 370
Screwed Standard Bronze Gate Valve

Always marked with the "Diamond"

Jenkins Valves

SINCE 1864

Installed in 25 of the leading golf and country clubs—

(This is in addition to scores of club installations, of which we have obtained no records from our dealers)

Many of these showers were especially designed to meet or overcome certain conditions. The data which we have collected in connection with these installations is at the service of architects at all times.

The showers shown here are in the shower room of the Manufacturers' Country Club, near Philadelphia — Seeburger and Rabenold were the architects. The shower head is 12 inches across and has 666 holes. Valves are one inch size.

SPEAKMAN COMPANY
Wilmington Delaware

SPEAKMAN SHOWERS and FIXTURES

Reviews of Manufacturers' Publications

MURPHY DOOR BED CO., St. Louis. "A Thousand Homes with Murphy Beds." An Instance of Their Use.

All sorts of space-saving utilities have come into use as one result of the prevalent building shortage and the resultant high cost of living quarters. One of these is the "Door Bed," which instead of occupying floor area in a regulation bedroom is made up and folded into a space behind a door when it is not in use. With the help of such a bed any kind of room possesses potentialities as a bedroom, and such beds have been of great value to families living in small apartments or apartment hotels in quarters which only such utilities as this make living at all possible. This folder deals with the "Majestic Homes," built in a St. Louis suburb. Of the 1,000 projected 100 have now been built, and each has at least one room which becomes a bedroom when its Door Bed is brought into use. The bed is usually concealed behind an ordinary 3 x 7 stock door.

ARMSTRONG CORK & INSULATION CO., Pittsburgh. "Nonpareil Cork Covering." A Booklet on Insulation.

A subject which is full of importance for architects and builders is that of insulation. It is reasonable, of course, that pipes conducting heat or refrigeration should be protected, lest in passing through areas which are chilled or warmed the heat or refrigeration in the pipes be largely or completely lost. Loss from lines not insulated can be computed without much difficulty, and it has been figured out that only 200 feet of 1½-inch pipe carrying brine chilled to 15° Fahr. through surrounding air at 90° will (if not properly insulated) lose over 438 tons of refrigeration a year. This brochure discusses the importance of cork as an insulating material, analyzes its composition and other essential qualities, its durability, use, and the proper methods of installing it around pipes to give the best results. Naturally, countless accessories are discussed and illustrated.

HEATING AND VENTILATING MAGAZINE CO., New York. "House Heating with Oil Fuel."

The growing use of oil as fuel and the rapidity with which in many parts of the United States it is taking the place of coal for heating purposes, render of particular interest anything regarding the apparatus by means of which heat derived from oil is obtained. This useful publication contains more than a description of the oil-burning apparatus supplied by this concern, for it goes closely into the entire subject of the advantages of using oil as fuel, studies the nature and history of oil burning, discusses the characteristics of oil, such as its viscosity, etc., and goes into the question of fuel requirements for making habitable a house during varying degrees of outside temperature, the relations between gravity and heat contents, and the chemistry of combustion. The apparatus for burning oil receives exhaustive treatment, as do also all the accessories.

LOUISVILLE CEMENT CO., Inc., Louisville. "Brixment for Perfect Mortar." A Work on Mortar Composition.

Architects and builders whose work involves much use of stone or brick will appreciate value in the mortar with which these materials are laid, and the quality of mortar is to a great extent dependent upon the value of the cement which forms one of its most important ingredients. This brochure deals with the merits of "Brixment," widely known as a cement for mortar, and possessing strength, endurance, and other desirable qualities. The booklet goes at length into its process of manufacture, gives its chemical analysis and record of physical tests, and mentions some of the advantages of its use, among which are that it does not stain; possesses unusual plasticity and uniformity; cannot fade; repels moisture, etc. There is also given the report on "Brixment" issued by the American Bureau of Inspection and Tests. The data which are contained in the brochure entitle it to a place in any specification file.

UNITED STATES GYPSUM CO., Chicago. "Oriental Stucco." Its Ever Increasing Use in Modern Building.

Exteriors of many architectural types owe much of their charm to their beautiful wall textures. Greek, Italian and Spanish forms and certain of the English types are most beautiful when developed in materials which are coated over with some form of the stucco which the old builders in all the countries suggested knew so well how to use.

This beautiful work discusses the use of "Oriental Stucco," manufactured by the United States Gypsum Co. It contains illustrations and descriptions of many beautiful old buildings in Europe and a number of buildings in these styles recently constructed in America in which the same beauty has been secured by use of "Oriental Stucco." A useful detail is the inclusion of a number of panels finished with actual stucco of several different kinds, from which an idea of its value may be had by architect or decorator.

THE PLATE GLASS MANUFACTURERS OF AMERICA. "The Age of Plate Glass." A History of Glass Making.

The early manufacture of plate glass in America was attended with many difficulties and discouragements, and not until as late as 1880 was its manufacture established upon a basis which made it commercially profitable or even economically possible. Its manufacture since that time, however, has gone ahead by leaps and bounds, and America's plate glass is now being used not only for the usual and obvious purpose of glazing windows and doors, but for mirrors, furniture tops, and in fact for every conceivable purpose for which plate glass is likely to be used. This interesting little booklet gives an account of the early history of the industry in America, and also a description of the process by which it is made — of the *processes* rather, for after the glass is made it must be ground, polished, and otherwise treated before it is ready for use.

HITCHINGS & CO., Elizabeth, N. J. "Greenhouse and Garage Combination." Useful for Suggesting Possibilities.

There are several excellent reasons why the inclusion in one building of garage and greenhouse is to be advocated. The accessory buildings upon an estate are likely to be handled more successfully from an architectural point of view when closely grouped or combined than when scattered about the grounds, and heating is much more easily and economically supplied to one building or to two closely connected than to two separated by some distance. Then too, since the chauffeur is sometimes also the gardener, it is much to his convenience to have the garage and the greenhouse so planned that he may give his attention to both at the same time. In this brochure a large and widely known firm of greenhouse builders illustrates and describes a number or structures they have designed and built, in which garages and greenhouses are combined.

ATLAS PORTLAND CEMENT CO., New York. "Color in Concrete." A Brochure on Color in Construction.

Concrete construction, useful as it has always been for work of a strictly structural or engineering character, was not widely used for work in which excellence of appearance is a factor until considerable research and experiment had brought about its improvement. A great part of this improvement has been due to the studies sponsored by the Atlas Portland Cement Co., which in 1895 developed and perfected the "rotary kiln" which made certain and even the quality of Portland Cement.

The evenness of quality of "Atlas White" cement, made by this company, has made possible its use in architectural work of considerable importance, and this brochure is devoted to illustrating and describing a church in Washington, built of concrete in color, and a fountain of unusual size in Chicago, of which Lorado Taft was the sculptor, both showing highly successful use of color.

Santá Fe Office Building, Topeka, Kansas
Architect: Santa Fe System. Plbg. Contractor: Simmons Plbg. & Htg. Co., Wichita
Jobber: Topeka Steam Boiler Works. Equipped with No. 18-59 Seats

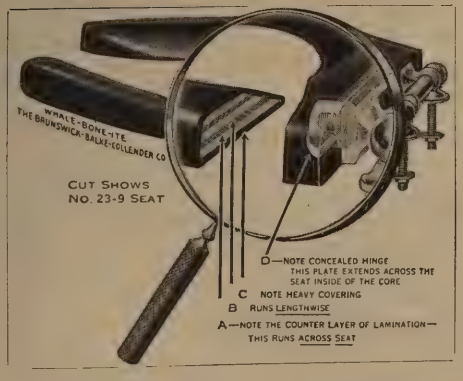
First National Bank Bldg., Tulsa, Okla.
Architects: Rush, Endicott & Rush. Jobber: Kellogg MacKay Co.
Plumber: Dunbar Plbg. & Htg. Co. Equipped with No. 21-9 Seats

Kansas City Life Insurance Bldg., Kansas City, Mo.
Architects: Wight & Wight. Jobber: U. S. Water & Steam Supply Co.
Plumber: McMahon Plbg. & Htg. Co. Equipped with No. 18-59 Seats

The Choice of Architects and Building Managers

Whale-Bone-Ite Toilet Seats

—Permanently Long Wearing, Non-Inflammable, Sanitary and Good Looking



"The Seat of No Apologies"
Note the hinge construction

The ebony black, or rich mahogany finish of Whale-Bone-Ite seats affords a most pleasing contrast with the tile and trim of the bathroom or lavatory.

THE handsome lavatory equipment bearing the name Whale-Bone-Ite stands out head and shoulders above the common run of equipment in this field. Hence leading architects and building managers insist upon it for new equipment, or for the *final* replacement.

Read these 10 important exclusive features:

Permanent Durability	Sanitary
Easiest Cleaned	Comfortable
Acid-Proof	Non-Inflammable
Permanent Finish	Non-Warping
No Exposed Metal	One-Piece Construction

Leading plumbers and jobbers supply Whale-Bone-Ite. Refuse imitations.

Whale-Bone-Ite Division

The Brunswick-Balke-Collender Co.
623 South Wabash Avenue, Chicago

SEE SWEET'S CATALOG FOR DETAILED DATA

THE BRUNSWICK-BALKE-COLLENDER CO.
WHALE-BONE-ITE
REG. U.S. PAT. OFF. 1914.
SEAT

Reviews and Announcements

CURTIS COMPANIES, Inc., New York, Pittsburgh, Baltimore. "Curtis Woodwork." A Booklet on Wood Trim.

The excellence of the stock woodwork supplied by these Companies is too well known by architects and builders to require much comment. Years ago it was found that there existed a wide market for skillfully designed woodwork appropriate for small or medium-sized houses in the Colonial style, and which could be had at prices which would render its use possible in buildings likely to be built at small cost. All this the Curtis Companies set out to give, and the extensive use of their product, designed by experienced and discriminating architects, is the measure of their success. This brochure, one of quite a number issued by the Companies, illustrates and gives measurements of many details of exterior and interior trim,—doors, porches, hoods, shutters and blinds, dormers, trellises and mantels.

OAK FLOORING BUREAU, Chicago. "The Story of Oak Floors." The Value of Properly Finished Floors.

The strength and serviceability of oak are demonstrated in no way more convincingly than in oak's use as flooring. Strength is of course closely involved with durability, and there are countless instances on record where oak has endured already for several hundred or a thousand years and yet gives promise of enduring for as many more, while its serviceability lies to a great extent in the ease with which it is given countless pleasing finishes, thus adapting it to interiors of different types. To aid, perhaps, in making oak's advantage better known, this publication is issued. It contains illustrations of interiors of many different types, showing successful use of oak flooring in them all, and to aid in the choosing of a finish to accord with any setting, there are illustrations in color showing the exact appearance of oak when finished by different methods.

THE CELOTEX COMPANY, Chicago and New Orleans. "Your Home; How To Plan It for Health and Comfort."

Architects recognize, of course, the value of a building material which serves more than one purpose—a material, for example, which in addition to forming an important part of a wall possesses the important advantage of insulating the wall against the passage through it of cold or heat. "Celotex" is described as a manufactured "insulating lumber," highly useful instead of sheathing for the outside of a house and as a base for plaster, or for an interior finish on the inside. It is also placed as insulation under the roof rafters or under the attic floor, and the spaces where roof rafters rest on side wall plates are often specified to be carefully filled or blocked with "Celotex." The material, fully described in the booklet, is made from *bagasse,* the fiber of sugar cane after the juice has been extracted, the fiber possessing the requisite strength.

THE LONG-BELL LUMBER CO., Kansas City. "The Perfect Floor." Excellent Specification Data Regarding Floors. Valuable to Builders or Specification Men.

Important as floors are, there are few subjects which are more misunderstood and disregarded than their proper laying and upkeep. In the offices of many architects the specifications which apply to floors are so carelessly written that a building contractor may use in laying them almost anything in the way of lumber he may have at hand, and countless are the excellent, well made floors which have been spoiled after houses have been finished and occupied by thoughtless use upon them of cleaning preparations which effectually destroy the finish.

This brochure, one of the many excellent publications issued by this large firm of lumber dealers, gives directions for the making and care of floors which could hardly fail to be helpful and valuable to architects and builders as well as to house keepers. It covers completely the modern wood floor, how it should be laid and finished.

CUTLER MAIL CHUTE CO., Rochester, N. Y. "Use and Care of the Cutler Mail Chute."

Usefulness of the mail chutes which are now installed in buildings of many kinds depends largely upon the care which they receive. Not that much in the way of upkeep is necessary, the care referred to being chiefly ordinary care in so placing mail matter in the chutes that they will not become blocked up. To aid in securing proper mailing, and therefore proper service, these large manufacturers of chutes issue this folder which gives considerable advice in the preparation of envelopes for mailing so that wet mucilage cannot cause them to adhere to one another or to the inner walls of the chutes, and advice also on the folding or crowding of bulky matter which would be likely to congest the chutes, delaying the mailing of letters until the stoppage is discovered and the resulting congestion remedied.

DELCO LIGHT COMPANY, Dayton. "Frigidaire Electric Refrigeration for Residential Apartments."

No detail of a domestic building of any type is more important than the refrigeration in its pantry intended for the keeping of food supplies. Use of ice is necessarily open to certain objections, among which is the fact that it must be continually renewed, and many architects and builders are now installing apparatus which supplies refrigeration without the use of ice. This brochure deals with the now widely known "Frigidaire" system, illustrating and describing the apparatus and its installation, and giving views of a large number of residence structures, chiefly apartment houses, where "Frigidaire" equipment is in use. The equipment is particularly desirable in such buildings, since it supplies independently refrigeration for each apartment, and when an apartment is vacant there is no expense for refrigeration. Any icebox can be used.

THE FAIRFACTS COMPANY, New York. "Fairfacts Fixtures." A Brochure Useful to Architects and Builders.

Considerable power of invention and no small degree of skill in design have been devoted to the production of the fittings which go into the modern bathroom. This development, for the most part, has been guided by excellent taste, and as the manufacturers of bathroom plumbing and fittings have produced one detail after another and then to the utilities themselves have added grace of form and the interest given by color as a variation from the glaring white, there has come a degree of completeness so closely approaching what seems to be perfection that there cannot be any considerable further development possible. The excellence of the fittings supplied by the Fairfacts Company is well set forth in this booklet, which abounds in views in color of well equipped bathrooms. It illustrates and lists also bathroom accessories of every conceivable kind. The brochure has been produced in conformity with the requirements for catalogs issued by the American Institute of Architects, and this renders easy its being filed in any of the standard sized files likely to be used in architects' offices. The brochure's value warrants the filing.

VAN RENSSELAER P. SAXE, C.E.

Consulting Engineer

STRUCTURAL STEEL
CONCRETE CONSTRUCTION

Knickerbocker Building Baltimore

When an architect builds *for* architects

WHEN an architect builds an office building *for architects*, you would expect the structure to combine great beauty and permanence. The Architects' Building, in the exclusive Park Avenue section of New York City, does just that.

On some of the construction features it was not an easy task to combine durability with good looks. For instance, the exterior of the building was to be waterproofed without spoiling the appearance of the brickwork.

This was accomplished by treating the most exposed exterior wall surfaces with Hydrocide Colorless. No matter how hard rain may blow in from the Atlantic Ocean, the walls of the Architects' Building are permanently dampproof and waterproof. At the same time the presence of Hydrocide Colorless can not be detected on the walls.

Hydrocide Colorless is a perfect waterproofing material that penetrates the brick. It does not run in hot weather, for it contains no paraffin; it can be applied in cold weather without any heating; it does not collect dust; and it can be painted. Most important of all, it retains the natural beauty of the brickwork while it renders that brickwork impervious to moisture.

Use Hydrocide Colorless on your next exterior waterproofing job. It turns out the kind of walls of which you can be permanently proud. Send for literature giving further details about the product.

The Architects' Building, 101 Park Ave., New York City. Ewing and Chappell, Architects; Structural Waterproofing Company, Waterproofing Contractors

HYDROCIDE COLORLESS
WATERPROOFING

Other Sonneborn products

Lapidolith—The original concrete floor hardener. A liquid chemical that changes the floor surface to a fine, dense, crystalline structure of flint-like hardness. Hundreds of millions of feet of concrete floor have been Lapidolized in office buildings and in the leading industrial plants of the country.

Fermo—Added to the mix, Fermo hastens the setting of concrete to a remarkable degree. Minimizes danger of freezing in cold weather and saves valuable time in respect to labor and the quick re-use of forms. One quart of Fermo is added to the gauging water for every bag of cement.

Cemcoat—A paint that stays white longer than any similar paint; can be washed again and again; sticks to brick or concrete as easily as to wood; and usually requires one less coat. Made for both interiors and exteriors, in white and colors, and in gloss, eggshell or flat enamel finishes.

Lignophol—A preservative dressing for wood floors that penetrates and restores the natural oil and gum of the wood. Lignophol prevents rotting, splintering and drying out; it is not sticky; it can easily be washed; and does away with ordinary floor oils.

114 Fifth Avenue **L. SONNEBORN SONS, INC.** New York City

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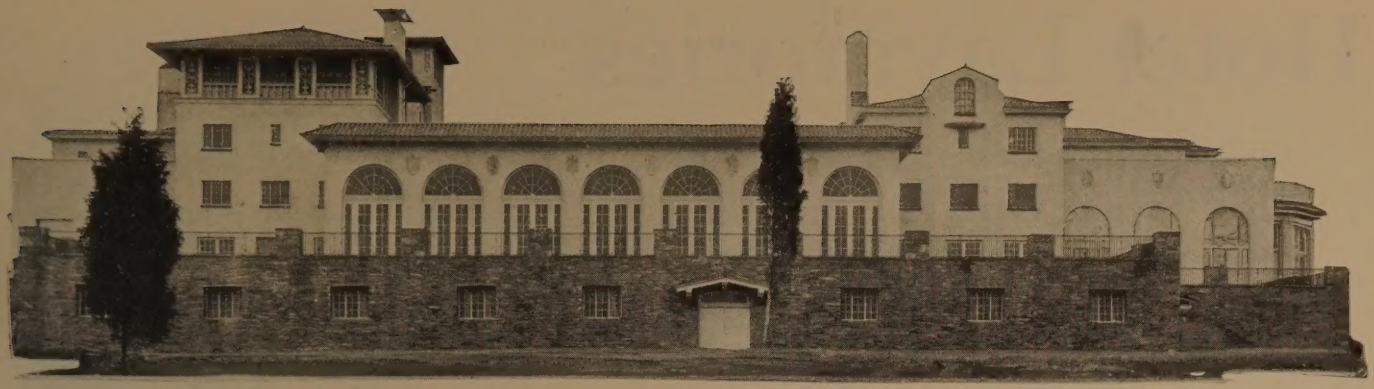

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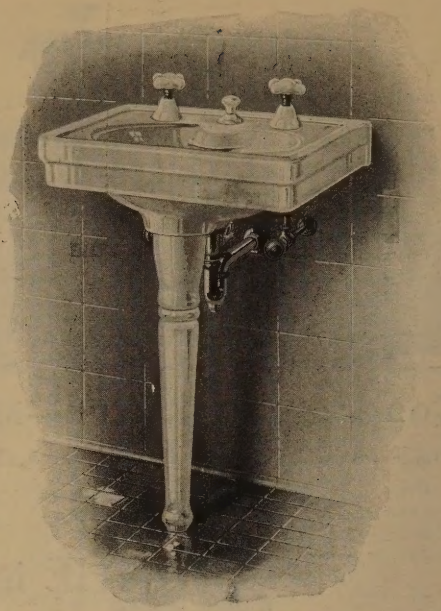

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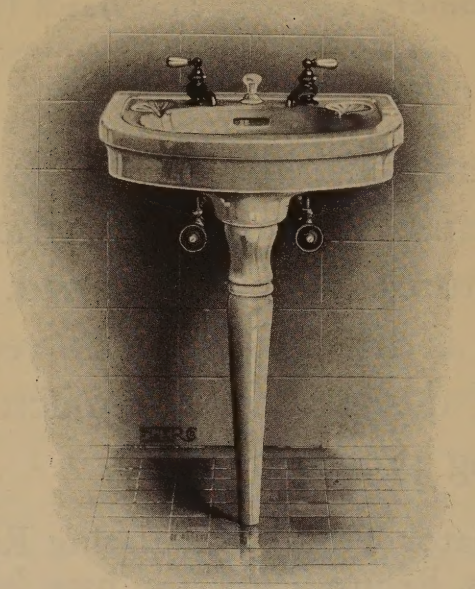

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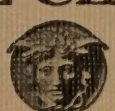

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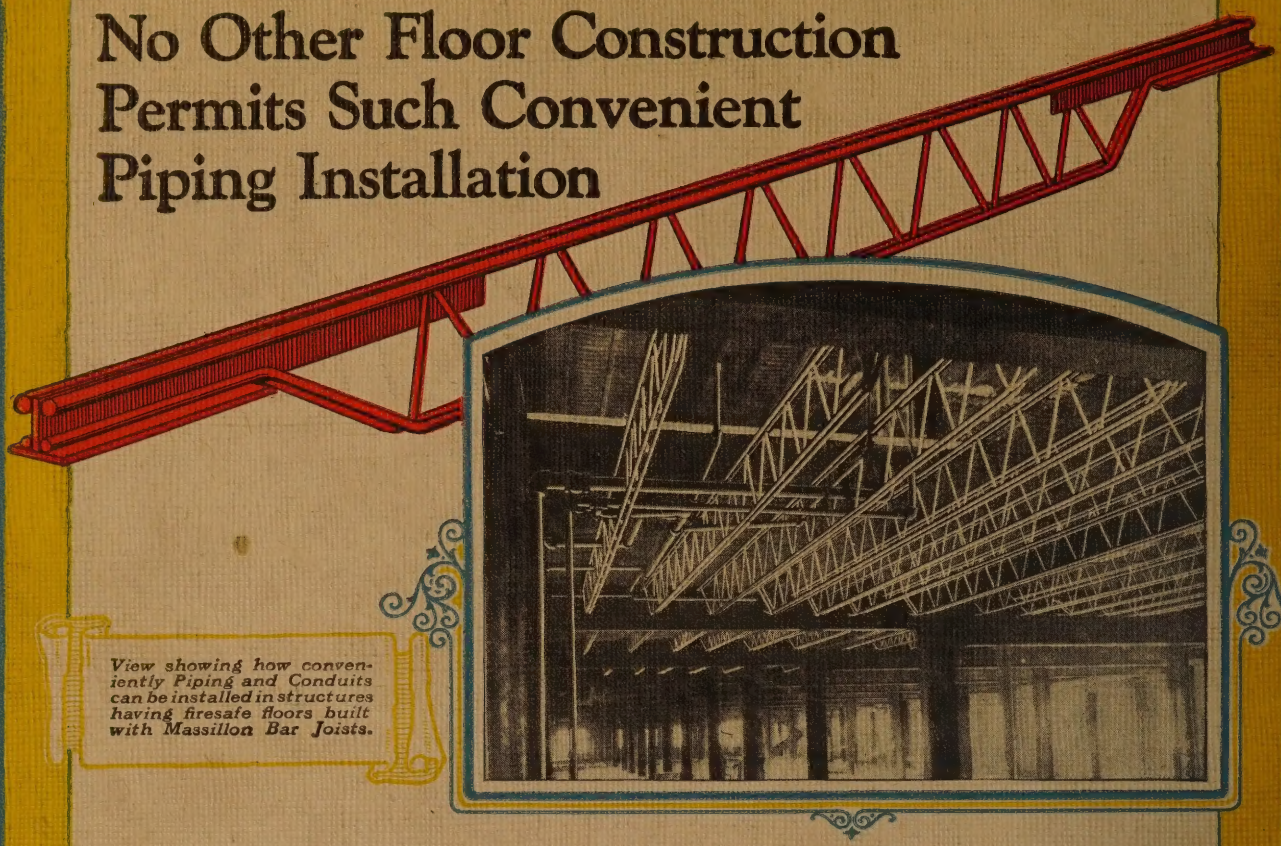

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